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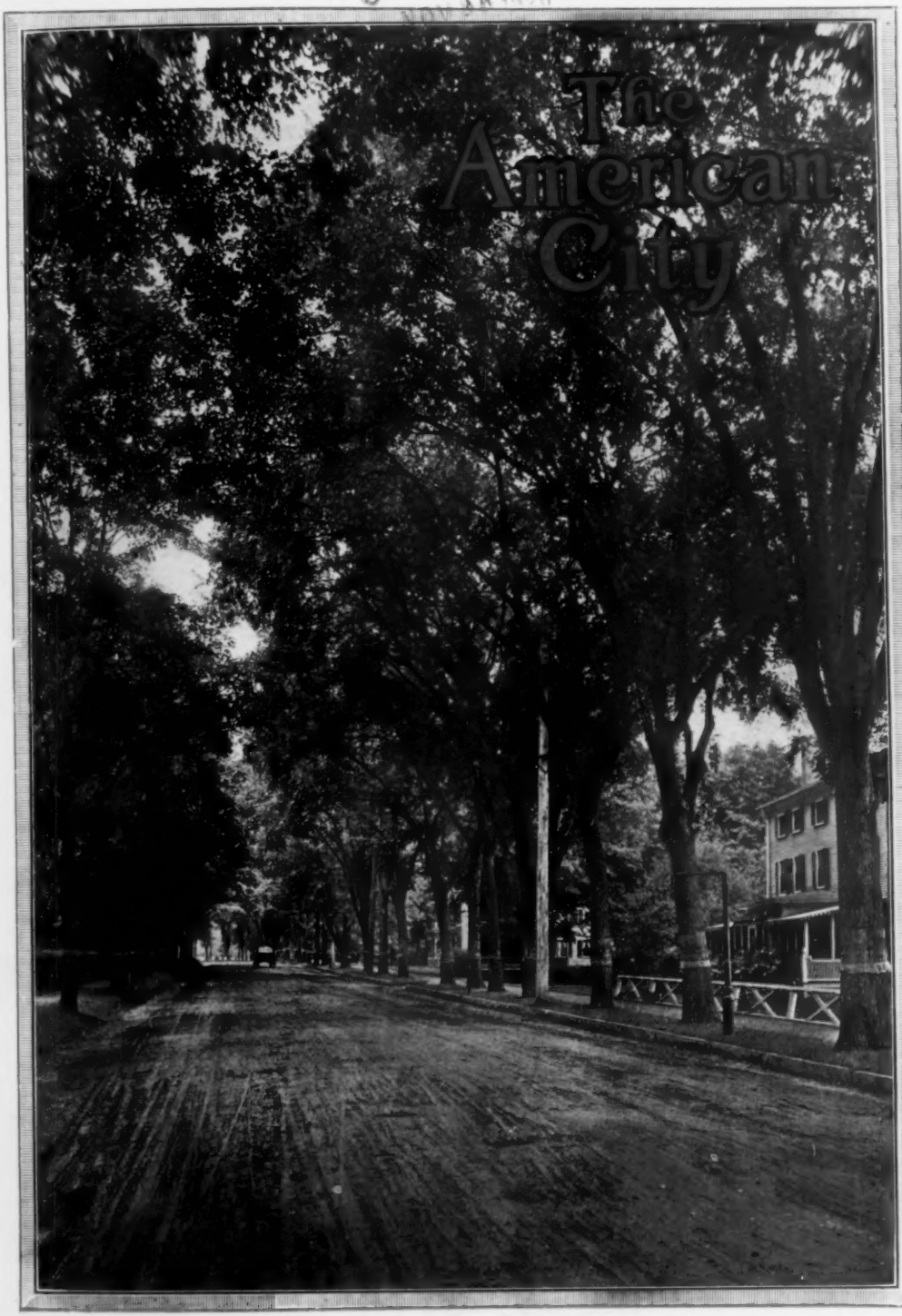

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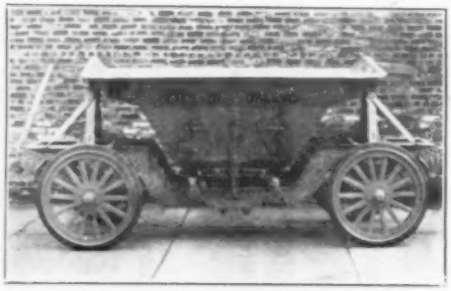

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The American City

NEW YORK
OCTOBER,
1920

Unchoking Our Congested Streets

By Robert H. Whitten
Advisor, Cleveland City Plan Commission

THE street traffic problem is becoming increasingly serious in all large cities. London and Paris as well as New York and Chicago have found their thoroughfare systems choked with the ever-increasing burden that has been thrown upon them. Numerous other cities, such as Liverpool, Manchester and Birmingham in England, and Philadelphia, Boston, Detroit, Cleveland, St. Louis, Baltimore, Buffalo, Newark, and Kansas City, Mo., in the United States, are having increasingly difficult traffic conditions. Street traffic is increasing so rapidly that roadways that a few decades ago seemed adequate for all time have become so congested as seriously to menace the prosperity of the city.

Street traffic is increasing much more rapidly than population. If the growth of street traffic merely kept pace with the growth of population, the problem of making adequate provision for the future would be sufficiently difficult. It is probable, however, that the street burden will under normal conditions increase twice as fast as population, that is, while population is doubling the street traffic will be trebled. As a city spreads out and distances become too great for walking, it is natural that the per capita number of rides by vehicle and car should increase. This is shown very clearly in the street railway and rapid transit statistics of various cities. These statistics show that, in general, rides have increased as the *square* of the population, that is, as population has doubled, the number of car rides has quadrupled. The result has been that as various cities have grown in population and area, a point has been reached where it has become physically impossible to handle a sufficient number of street cars at a reasonable speed over

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SEVEN LINES OF TRAFFIC AND A DOUBLE-TRACK CAR LINE CONGEST FORTY-SECOND STREET, NEW YORK

the surface of the streets to carry the traffic. As a result, it has been necessary to supplement the street surface by elevated railroads and rapid transit subways.

Effect of the Automobile on Street Congestion

With the advent of the automobile a new facility for city transportation has been introduced which is placing a very much increased burden on the streets. The speed and convenience of the automobile as compared with the street car as a means of getting about town has led to its use in enormous numbers in cities where conditions were favorable to its full development. In some of these cities the private automobile and the jitney have caused a serious decline in the revenue of the street car companies. The private automobile takes from two to twenty times as much street space per passenger carried as does the street car. Moreover, every improvement in transportation causes an increase in the number of rides per capita. The automobile, therefore, causes a direct increase in the normal increment of rides per capita while at the same time causing an increase in the average amount of street space required per passenger carried.

The possible combined effect of these two causes on street congestion is alarming. Of course, there is this offset. The moment street congestion becomes so great that the automobile as compared with the street car or rapid transit train is no longer the more convenient and expeditious method of travel, the use of the private automobile will decline. This is illustrated in the present comparative use of the automobile in various cities. In the cities of moderate size with adequate streets, smooth pavements and favorable weather conditions, the use of the private automobile as a means of city transport has been most general. On the other hand, in cities like New York and Chicago, where, prior to the advent of the automobile the streets in the business sections were already badly congested, the introduction of the private automobile has been much slower. In those cities the tendency has been for owners of automobiles to use them for pleasure and for business and social calls outside of the congested centers, but to rely on the railways for transportation to and from their work in the central business section and for business calls in that section. The demand, however, is becoming insistent that traffic conditions be so improved that the private automobile can play its normal part in the business of the city. This may necessitate radical changes in traffic methods. It may be necessary to segregate traffic and provide for a complete or partial separation of grades. But whatever the solution, we may be sure that its difficulty and cost will be in inverse proportion to the liberality with which the city has been provided with broad through-routes.

The Effect of the Motor Truck

While the private passenger automobile increases the burden on the street per passenger as compared with the street car, the motor truck tends to reduce the street burden per ton of goods as compared with the horse-drawn vehicle. This is chiefly due to the greater capacity, speed, reserve power and facility of movement of the motor truck. The substitution of the motor truck for the horse truck and delivery wagon means a very great relief to congestion.

The extent to which the motor truck will be used and the rapidity with which it will supersede the horse truck depends directly on the adequacy of the thoroughfare system. The motor truck involves a large investment as compared with the horse truck, and unless traffic conditions are such that a fair rate of speed can be maintained, the use of the motor truck will be uneconomic for most purposes. But, given an adequate thoroughfare system, the development of the motor truck for city and interurban transport is now only in its infancy. It will not only replace the horse truck, but will encroach on the railroad and will develop many new fields of usefulness.

Traffic Increase vs. Growth in Population

Under modern conditions it seems to be a general law that passenger travel and goods transportation will greatly outstrip the increase in population. This results from increase in productive capacity and consequent consuming ability of the people and from improvements in the art of transportation resulting in greater economy and convenience. Our greater productive power per capita makes it possible to spend more, and every improvement resulting in greater economy or convenience of transport

creates a demand for more transportation both of goods and passengers.

This is shown both by all available statistics of city passenger and vehicular traffic and by statistics of railroad freight and passenger traffic for the United States. The percentage increase in railroad freight tonnage in the United States for varying periods since 1890 has been 2.25 to 5 times as great as the percentage increase in population, the average being about 3.5 times. For similar periods railroad passenger traffic has increased from 1.25 to 2.75 times as fast as the population, with an average about two times. City passenger travel has increased from 2 to 3 times as fast as the population. As a city's railroad freight terminal tonnage is in large measure hauled through the streets, it is especially significant that such statistics as are available both for Cleveland and Chicago indicate that the freight tonnage of each is increasing about two times as fast as the population. On Fifth Avenue, New York City, traffic increased 1.5 times as fast as the population during the period 1885-1904 and 1.8 times as fast as the population during the period 1904-1917. In St. Louis, traffic on five principal streets increased two times as fast as the population during the period 1885-1917. In Paris, traffic on four streets increased three times as fast as the population during the period 1881-1912. These increases tend to confirm the estimate based on other available data that the minimum probable percentage increase in street traffic is at least two times as great as the percentage increase in population; that is, while population increases 100 per cent (doubles) traffic will increase at least 200 per cent (trebles).

The above is a conservative estimate and is undoubtedly entirely too low as an estimate for the next five or ten years. Not until the number of automobiles in use is nearer the saturation point will an estimate of traffic increase only two times as great as the increase in population be justified. In 1910 there were 500,000 motor cars in use in the United States; in 1918 there were 6,088,000. The percentage increase in the number of motor cars was 13 times the percentage increase in population. During the last five years, owing to the enormous development of the automobile, traffic has increased many times as fast as population. In Newark, N. J., during the period 1912-15 traffic increased 3 times as rapidly as the population. In Brooklyn during the period 1914-18, based on counts on three typical streets, traffic increased 6.2 times as fast as the population. In London, during the period

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TRAFFIC ON FIFTH AVENUE, NEW YORK, INCREASES NEARLY TWICE AS FAST AS THE POPULATION

1911-14, traffic increased 6.4 times as fast as the population. In Buffalo during the period 1909-16, based on counts at eight intersections, traffic increased 7 times as fast as the population. In St. Louis, during the period 1913-17, traffic increased 8.7 times as fast as the population. On Massachusetts highways, during the period 1909-18, traffic increased 14.5 times as fast as the population.

The unusual increase in traffic due to the automobile is by no means spent. It will doubtless continue for five or ten years longer. For an estimate, therefore, of traffic growth during the next five or ten years the rate of population increase should be multiplied by four or more instead of two. But for the longer look ahead, say the next twenty or forty years, it is safe to use the rule heretofore worked out, that the probable rate of traffic increase will be twice the expected rate of population increase.

The Important Element of Speed

The traffic problem is chiefly one of average speed and not of the number of vehicles it is physically possible to move through the streets. Even with all the interruption due to cross-traffic, there is abundant street capacity in so far as the number of vehicles that it is possible to pass through the streets during any 2- or 12-hour period is concerned. All the traffic offering can doubtless be taken care of—the only question is with what delay and with what average speed. If an average speed of 2 to 6 miles an hour will suffice, there is no traffic problem now and possibly never will be. If, on the other hand, an average speed of 10 to 20 miles an hour is demanded, the traffic problem is extremely urgent and difficult.

The cost of street congestion in a city like Chicago, New York or London can scarcely be exaggerated. In the loop district of Chicago street cars are slowed down in the rush hours to average speeds of 3.5 miles and 5 miles an hour. In Cleveland the average speed of street cars for the city as a whole is about 10½ miles an hour. In the vicinity of the Public Square the average rush hour speed is about 6 miles per hour. As the business district of Cleveland expands and extends further and further east, we may expect the existing congestion on lower Euclid Avenue to extend to a large area including many narrow streets. A street car service that must travel even 2 miles through congested streets at a speed of 3 to 5 miles an hour is not a service that can succeed financially, and it will certainly be most unsatisfactory to the public. It will waste time and lead to the congestion of population. Rapid transit railroads will help this situation, but they are enormously expensive, and in New York City, where a fairly complete system of elevated and subway rapid transit has been provided, it has not been found feasible to abandon the surface car lines. An adequate thoroughfare system will postpone the time when a complete subway system will be required, and will greatly reduce the cost of such system when it is constructed. For Cleveland the present cost of the necessary street widenings and extensions to provide a complete thoroughfare system will during the next fifty years be saved many times over in lessened expenditure for rapid transit subways.

Extreme congestion means not only that street car service is disrupted, but that all trucking and commercial traffic is slowed down. The cost of trucking is a much larger factor in the cost of most goods than is railroad freight. Many products are transferred by vehicle through city streets a half-dozen or more times before they reach the consumer. If, through street congestion, as is undoubtedly true in parts of Chicago, New York and London, the time and cost of trucking goods is doubled, the toll due to congestion is certainly enormous. It is paid in part by the public in higher prices. It also places a serious handicap on city commerce and industry.

A thoroughfare plan that will serve adequately the enormously increased needs of the future is a critical problem for many cities. After streets are built up solidly with business buildings and apartments, it becomes almost prohibitively expensive to alter greatly the general street plan. Yet it is apparent that the limited number of through traffic routes that these cities now possess will be absolutely inadequate for traffic needs twenty, fifty or one hundred years hence. Unless measures are taken in time, growth will be checked and the city may be faced with the alternative of permanent ruin or back-breaking financial burdens that could have been avoided by a little vision in the planning of the city.

A City Transformed by Water

City and County Joined in Providing Funds for New Ship Channel at Houston, Texas

By Burt Rule

Publicity Director, Houston, Texas, Young Men's Business League

NOT so many years ago the average person residing in a section other than the extreme Southwest, and possessing a normal fund of knowledge regarding the geography of these United States, thought of Houston, Texas, as an inland city located somewhere in South Texas. To-day, the information is being rapidly disseminated not only throughout America but to all the great ports of the world that Houston, Texas, is a deepwater port where seventeen railroads meet the sea.

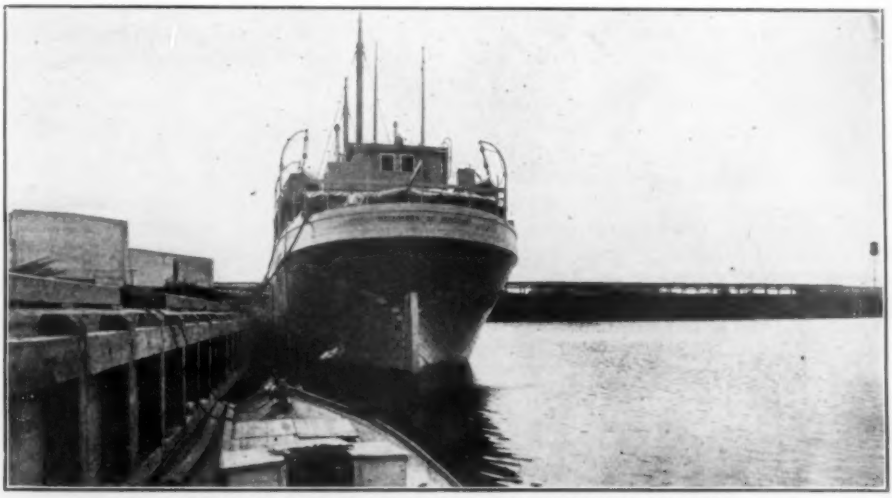
The underlying cause of Houston's transformation from comparative obscurity to fame has been the development of her deep waterway, the Houston Ship Channel, which has literally brought the Gulf of Mexico to her door. This strip of water is Houston's medium of commercial communication.

Consideration is now being given the Port of Houston as the natural export and import gateway of that vast area lying between the Rocky Mountains and the Mississippi River.

In addition to definite plans of action looking to the continuous development of the waterway itself, the Port of Houston possesses another natural advantage which renders less difficult of acceptance certain "staggering" predictions that have been made. It has the most extensive deep water frontage, available and practicable for industrial use, of any inland port in the world.

With a view to the systematic development and control of the harbor, the city of Houston took advantage of an act of the Legislature in 1913 and extended its limits to include the channel down to its entrance into Galveston Bay and the territory lying along the channel for a distance of 2,500 feet from the center of the waterway. The city has not the power of taxation over this area, but harbor police operating from the office of the city harbor department patrol the entire harbor within the jurisdiction of the city—a distance of 33 miles.

The Houston Ship Channel occupies a natural waterbed, which before the creation



A PORTION OF THE HOUSTON, TEXAS, MUNICIPAL DOCKS

of the channel was known as Buffalo Bayou. From the turning basin at Houston to the open gulf, Houston's waterway traverses a distance of 54 miles. The ruling depth is 25 feet. The bottom width of the channel is 100 feet from the turning basin to Morgan's Point and 150 feet from Morgan's Point to the gulf waters, except in the vicinity of Red Fish Reef, where the width is 250 feet to allow freedom to the tide. The turning basin has a radius of 1,100 feet, which is sufficient to take care of the largest vessels. At six points the channel has been widened an additional 100 feet to facilitate the passing of large vessels.

Public Funds Made Channel Possible

The present development of the channel and of the harbor facilities has been brought about through the public-spirited action of Houston citizens in conjunction with financial assistance obtained from the Federal Government. To date a total of approximately $6,700,000 has been expended in this work, of which $1,500,000 has been contributed by the citizens of Houston and Harris County.

On May 24, 1919, Harris County voted a bond issue of $1,500,000 as its share of the expense of improvements as authorized by Congress. The total cost of these improvements will approximate $3,850,000. When they are completed, a total of $10,500,000 will have been spent on the actual construction of the channel. Congress has agreed to appropriate one-third of a million dollars annually to maintain the depth and width authorized.

Practical work on these further improvements of the channel has been started. When it is completed, the ruling depth will be 30 feet with a bottom width of 150 feet from Morgan's Point to Houston and 250 feet from the former point to the gulf. Curves in the channel will also be straightened.

In consideration of the ultimate improvements planned, restrictions in regard to dock construction are effective at once. There is other practical evidence indicating that Houston will eventually possess a waterway 500 feet in width from Houston to a point approximately halfway to the gulf and 600 feet the remainder of the distance. Several additional turning basins will be provided to permit boats to clear at various points along the channel. It is probable that the mouths of the many small streams tributary to the channel will be utilized for this purpose. The channel will be lighted by range lights and thus permit vessels to travel the waterway at all times of the 24 hours.

The Value of Industry and Control

A contributing factor to the rapid growth of the Port of Houston is the Municipal Harbor Belt Railway. It now has more than 15 miles of track and reaches most of the industries on the south side of the channel from the turning basin to a point about 6 miles down the channel. It is contemplated to extend the line to Morgan's Point on the south side, a distance of 18 miles, and on the north side to the vicinity of Goose Creek, the famous oil field, to connect with a railway which has just recently been completed to that point.

Completion of this project will give all industries located on the channel a unique combination of facilities. They will have deep water at their front doors and also direct rail connection with seventeen railways.

Houston, profiting by a study of other ports of the country, has striven to eliminate the possibility of corporation monopoly by a construction program of municipal terminal developments coincident with the completion of her deep waterway. A bond issue of $3,000,000 was voted, and the funds thus obtained were expended for the municipal harbor terminals as they stand to-day. Improvement and expansion of the present harbor facilities by the city will be continuous for several years.

A valuable adjunct to the Houston Ship Channel is the upper channel of Buffalo Bayou, extending from the turning basin to the center of the wholesale district. Barges of light draft and lighters navigate this channel without difficulty. Numerous warehouses are located on the upper channel and they ship direct by water to the turning basin of the ship channel. During 1918 approximately 500,000 tons of freight, representing more than $14,000,000, were transported over this upper waterway. This tonnage does not include cotton shipments, which have always comprised an important phase of the channel's activities.

The Houston Ship Channel has the distinction of being a very large oil refining center. There are eight refineries in actual

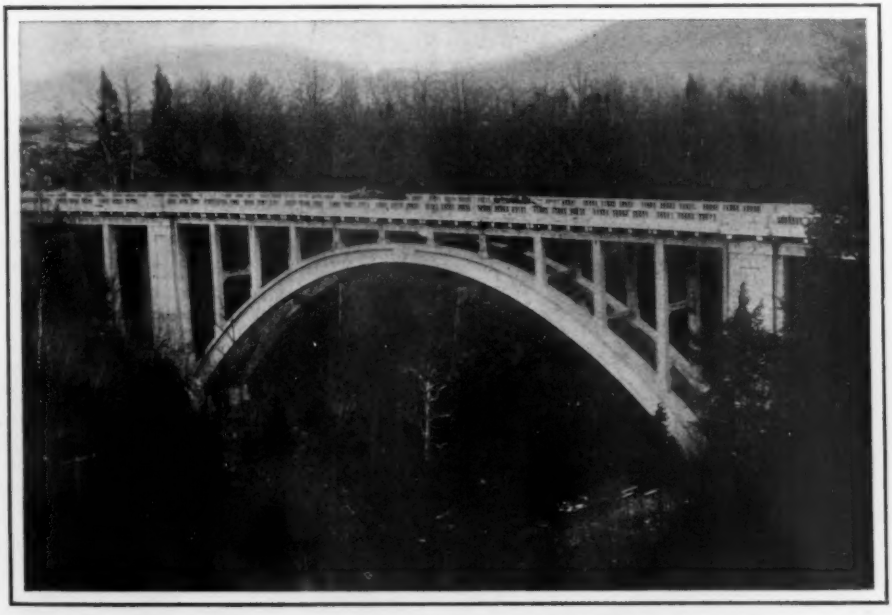
operation on its banks, six are under construction and five more have obtained sites with the announced intention of starting construction at the earliest possible date.

Activities of the Port of Houston

A report of the activities of the Port of Houston covering the year 1919 amply demonstrates it is no longer a deepwater port in name only. During that period 155 steam vessels called at and cleared from the port and unrigged vessels visited the port more than 4,000 times. The total of exports and imports aggregated 1,287,972 short tons. Coastwise vessels delivered cargoes valued at $52,588,291. The tonnage of cargoes destined for foreign ports during 1919 fell far below that which will be chalked up for 1920. This difference will have been brought about by the large shipments of cotton to Liverpool, which were inaugurated early this year. In 1919 the foreign tonnage amounted to 13,673.

Recent developments have proved to the satisfaction of the most doubting that the dream of the Houston pioneers of fifty years ago, for which they and present Houstonians have worked hard and long, has come true. The Port of Houston has been made a port of call for vessels from every quarter of the universe! Ships are clearing from the Port of Houston for Mexico, England, Cuba and ports along the Atlantic seaboard. Vessels allocated to the port by the United States Shipping Board have within the past few months carried huge cotton cargoes to Liverpool, England. The Leyland Line of England, it is announced, will also inaugurate regular sailings from Houston to Liverpool. An additional steamship service from Houston to Mexican ports was placed in effect in February of this year. The number of sailings of this line has already been increased.

For the past two years regular steamship service between Houston and Philadelphia has been in effect. The volume of business of this line has increased from two sailings a month to as many each week. For several years oil tankers from Tampico, Mexico, have delivered their cargoes to Houston refineries via the Houston Ship Channel. Negotiations are now under way that assure for Houston a number of additional coastwise lines. The actual operation of these additional lines depends only upon time for the completion of additional wharf facilities, finances for which are now being raised.



A SUBSTANTIAL AND ARTISTIC REINFORCED CONCRETE ARCH BRIDGE

Enlarging a Sewage Disposal Plant

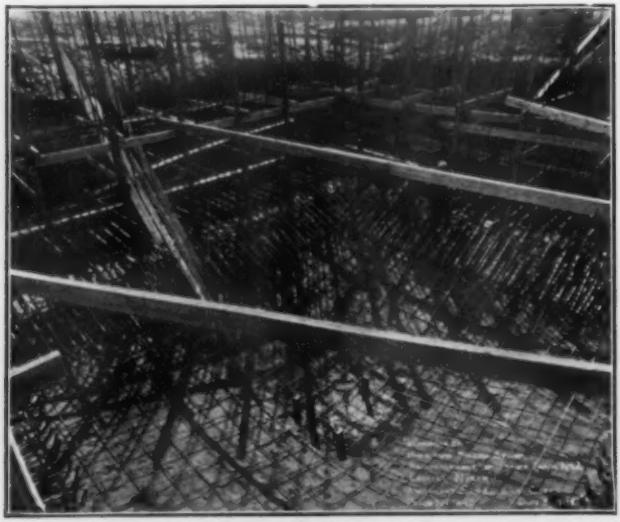
Heavy Load from Shipyard on Plant at Harriman, Pa., Necessitates Additional Works

By Frederick Glaeser

Fomerly Engineer, U. S. Shipping Board Emergency Fleet Corporation

IN connection with the industrial housing development at Harriman, Pa., the employes of the Merchant Shipbuilding Corporation, Agent for the United States Shipping Board Emergency Fleet Corporation, certain extensions were required to the existing sewage purification works of the borough of Bristol at Bristol, Pa. The Bristol shipyard is located on the Delaware River just outside the corporate limits of the borough of Bristol, and is about 24 miles east of Philadelphia. The housing development adjacent to the shipyard comprises approximately 120 acres, consisting of 532 houses, stores buildings, hotel, schoolhouse, police and fire headquarters, hospital, central heating plant and numerous other buildings.

The sewerage systems of both the shipyard and the town site are of the separate type. The storm water sewers empty into the Delaware River at the extreme easterly and westerly limits of the plant. The sanitary sewers, which consist of various sizes of laterals and collectors of vitrified terra cotta pipe, all finally empty at one point into a 24-inch terra cotta extra heavy tile pipe. This 24-inch pipe conducts the sewage from the town site and shipyard for a distance of almost 6,200 feet to a pumping station that is situated just outside the borough of Bristol limits. This pumping station was originally built by the borough, but was inadequate to meet the additional load thrown upon it by the sewage from the town site and shipyard, so extensive additions and alterations have been made to it. From the pumping station the sewage is conducted through a 16-inch cast iron force main to the disposal works distant about 1,600 feet farther west.



CONSTRUCTION PICTURE SHOWING REINFORCING STEEL FOR IMHOFF TANK NO. 2

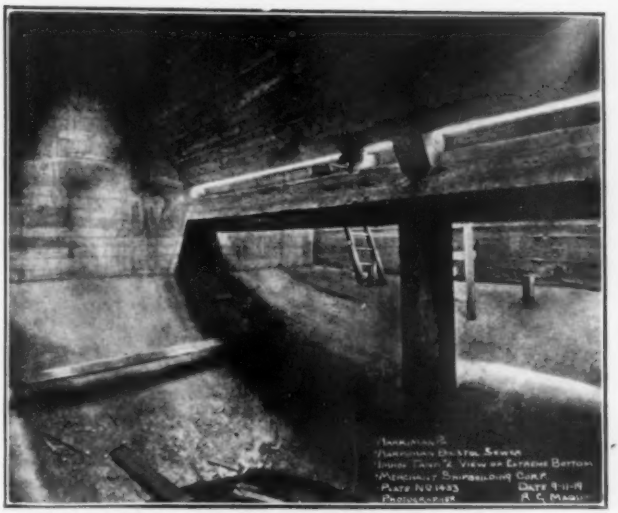
The Original Bristol Plant

The purification plant of the borough of Bristol consisted of four sedimentation tanks 19 x 60 x 7 feet deep, two settling basins 36 x 23 x 7 feet deep, contact beds that were 21,500 square feet in area with 4.5 feet depth of stone, disinfecting tank 50 x 90 x 4 feet deep, sludge beds 31 x 40 x 3 feet deep, and a sludge digestion tank 25 x 50 x 9 feet deep with a chamber 25 feet diameter, 7 feet deeper.

This plant was extended in 1917 to provide for a portion of the sewage that was discharged from the shipyard and temporary bunk houses of the construction forces that were then in course of construction. The additions consisted of an increase of 10,000

square feet in the area of the contact beds; an increase of 6 inches in the height of the filter-bed walls and the depth of stone, and a chamber in which proper distribution was made of sewage onto the filters.

In the spring of 1918 the permanent population in the new town site contributing sewage was considerably increased and it was necessary to prepare definite plans for a permanent disposal plant to provide for the permanent requirements of the shipyard and town site. It was proposed by the engineers of the Emergency Fleet Corporation to construct a disposal plant of the Imhoff type with rectangular form of tank.



INTERIOR OF COMPLETED IMHOFF TANK SHOWING SLUDGE SLOT

Designs were prepared by the Bristol Engineering Department based on the following assumptions: assumed ultimate population in town site, 8,100; additional area provided for outside of present town site, 190 acres; assumed ultimate population of additional area, 3,800 (density of population assumed much lower than in new town site because development will probably be along different lines); assumed ultimate population in shipyard plant, 11,100; total ultimate population, 23,000; present population, approximately 13,000.

RESULTS OF TESTS ON SEWAGE FROM TOWN SITE AND SHIPYARD

Date	Average C.F.S.	Flow Gal. per Day	Population Tributary	Flow Gal. per Cap.
7/24/18...	0.61	395,000	10,000	39.6
8/28/18...	0.84	545,000	12,500	43.6
9/ 4/18...	0.90	585,000	13,000	45.0
9/10/18...	0.97	630,000	13,000	48.4
9/11/18...	1.19	772,000	13,000	58.4
9/12/18...	0.80	520,000	13,000	40.0
Average of last four readings.	0.97	627,000	13,000	46.0

Assumed 55 gallons per capita per day as average future flow.
Ground water assumed at 60,000 gallons per day per mile of sewer.
Assumed average maximum flow—2.09 times the average daily flow.
Assumed extreme maximum flow—3.11 times the average daily flow.
Assumed average maximum flow—0.30 times the average daily flow.
Suspended solids as determined from samples—170 parts per million.

The New Plant

The design as finally approved consists of a tank having inside dimensions of 88 feet 6 inches length by 63 feet 2 inches width divided into three compartments which are so designed that one-third or two-thirds or the whole installation may be in service at one time. The design also permits of the reversal of flow. The bottoms of the tanks are inverted pyramids with steep sides having a slope of 1 on 2. The sludge withdrawal pipe is placed in the center at the lowest point. The flow line of the tanks was placed at such an elevation that the installation of sprinklers on the present filter-beds would be feasible and economical if required in the future.

The specifications for the construction of the tanks provided for a water-tight structure and were very rigid. The concrete in the walls was required to be placed in one operation from the footing up to the top, so that no construction joints except those designated were allowed. The construction joints permitted were at the top of the wall footings, at the junctions of the interior walls, and at the junctions of cross-walls with the outside walls. The faces of the slabs forming the sedimentation hoppers were required to have a smooth finish. These slabs being 6 inches thick and on a 60-degree slope presented considerable difficulty to the contractor.

A SNOW MELTER IN USE ON THE STREETS OF HELSINGFORS, FINLAND

A Snow-Removal Method Used in Finland

A Unique Snow-Melter Devised and Operated in Helsingfors

WHILE the weather prophets have not yet informed us as to what kind of winter is to be expected for 1920-1921, many American cities are carefully equipping themselves with the higher types of snow-removal apparatus, to enable them to combat blizzards similar to those encountered last winter. In fighting the rapid succession of blizzards in February, 1920, almost every conceivable kind of machine was brought into play. Tractors dragged road graders over the highways to open up the roads for traffic. A heavy snow tank appeared on the streets of New York, tearing up the ice and delivering it to motor trucks. An ingenious flame thrower was devised and mounted on the front of a motor truck. Snow-plows driven by motor trucks were found effective when kept in constant use. In Boston and other cities, locomotive cranes were seen on the streets, equipped with buckets which lifted the huge cakes of snow and deposited them in trucks which emptied them into the sea.

Interesting information from Helsingfors, Finland, tells of a snow-melting machine which was developed after ten years of experiment by a Finnish engineer. The idea underlying the construction of this successful machine, which has been used in a number of cities in Finland, Scandinavia and Russia, is to force the hot air and combustion gases from a furnace straight through the snow which is to be melted. This is done in such a way as to give a thermal efficiency claimed to be over 85 per cent.

Construction of Machine

The "Fennia" snowmelter consists of a welded furnace of iron sheeting, water-jacketed all around to keep it from damage through the tremendous heat generated, and to avoid a radiation of heat. A specially shaped water-cooled cover with suitable openings for the even distribution of the heated air and combustion gases tops the furnace. A removable snow-receptacle surrounds this cover and the upper part of the furnace, which on the outside is equipped with a system of ducts for collecting and expelling the melted water, sand and dirt. A high-speed blower, suitably housed and driven by a small electric motor or gas engine, drives a strong current of air directly into the furnace, causing rapid combustion. The hot air and gases are driven straight into the snow, causing it to melt very rapidly. The machine is prac-

tically smokeless, because of the completeness of combustion.

Melting Capacity and Cost

The melting capacity varies according to the size of the machine, the power of the motor and the heat value of the fuel used. The smallest model, shown herewith, has a one-horse-power motor, weighs about 675 pounds, requires four men to shovel in the snow, and melts between 5 and 10 tons of snow per hour. Good firewood gives a melting result of 5 to 6 tons, coke 6 to 9 tons, and anthracite and liquid fuel, such as kerosene or gasoline, gives 8 to 10 tons per hour. The smallest model consumes about 275 pounds of wood, 225 pounds of coke, 200 pounds of anthracite, 12 to 15 gallons of gasoline or kerosene per hour. This snow melter has been in use over eight years at even very low temperatures. At minus 4 degrees Fahrenheit it has been seen to give out a large volume of slightly warm water running a continuous stream which did not freeze in the gutter, but ran easily several hundred feet to the nearest catch-basin.

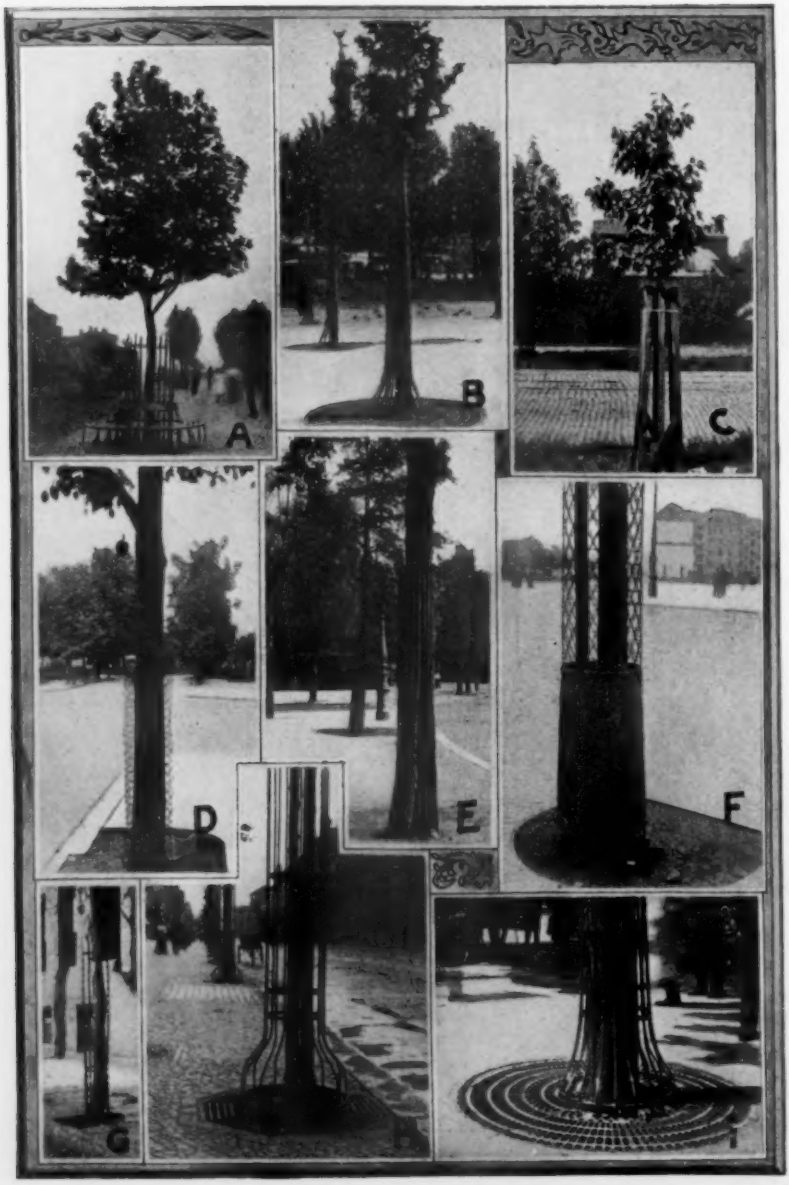
In Finland, a number of towns of ten to fifteen thousand inhabitants use this melter, and in the capitol, Helsingfors, the street cleaning department has a large number of them for use on the main streets.

Towing Stalled Trucks in New York Streets, February, 1920

MEMORIES OF THE EARLY 1920 BLIZZARDS

During the February blizzards in New York City contractors and trucking companies were greatly hindered by the drifts and by the snow thrown into the streets when sidewalks were cleaned. In order to help some of the heavy trucks through the downtown streets the New York agency of the Cletrac furnished small tractors, as shown in the above illustration, which towed many of the stalled trucks through the most difficult places

Types of Tree Guards



(A) A heavy guard of iron rods, about which is placed a seat providing a comfortable resting place for pedestrians and at the same time adequately guarding the tree. (B) A heavy guard of metal rods placed closer to the tree than in the first instance and provided at the base with a metal grating permitting sunlight, air and water to reach the roots of the young tree. (C) A sturdy guard made of wood, which may be painted or stained green to harmonize with the grass plot in which the young maple is planted. (D) A woven-wire guard which may not prove adequate where horses can reach from the gutter to the tree, inasmuch as this can be pressed up against the tree, enabling the horse to cut the bark through the mesh. (E) A novel guard of 1- to 1½-inch poles extending from the roots well above the danger zone. Because of its natural appearance it is very inconspicuous from the street and walk. (F) A woven-wire guard supported by a pole driven into the ground and having a heavy galvanized iron base to prevent damage of the lower portion of the tree above ground. This woven-wire protection is far more satisfactory than that shown in D. (G) Guard of twisted iron rods spaced too far apart, thereby permitting horses to attack the trees. (H) A somewhat similar guard to that shown in B. (I) The same guard shown in B, but in greater detail.

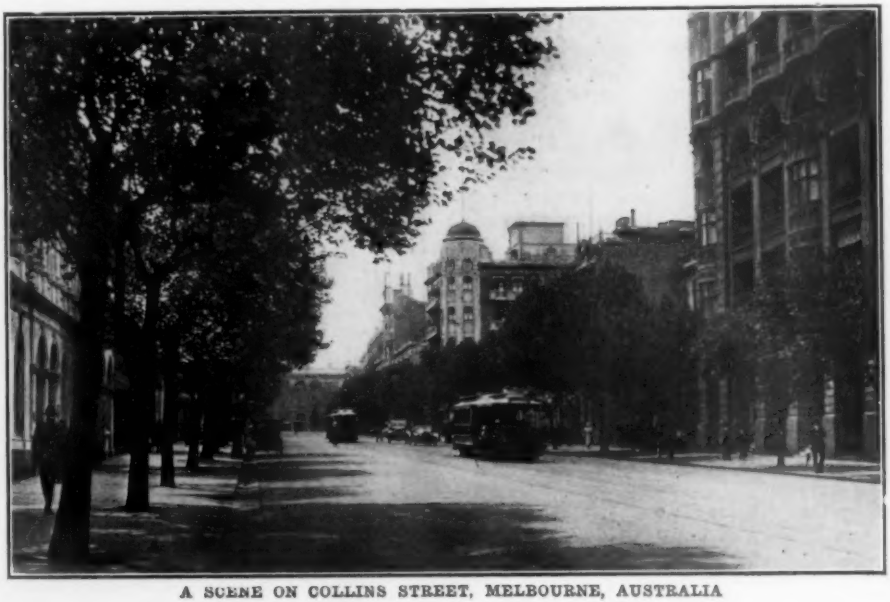
The Public Utilities of Melbourne, Australia

The Unusually Well-equipped Power Plants of These Municipally-Owned Utilities Prove Economical

IN order to fully understand the operation of public utilities in Melbourne, Australia, one must know the organization of the city administration. The Council of the city of Melbourne consists of thirty-two members, eight of whom are aldermen representing the eight wards of the city. The Council is presided over by a Lord Mayor who is elected annually by members of the Council. The permanent committees of the Council are: Public Works, Health, Finance, Markets, General Purposes and Legislative, Hackney Carriage, Electric Supply, Abattoirs and Cattle Market, Town Hall and Baths, Parks and Gardens, Alexandra Park, Insurance Special.

The metropolitan area of Melbourne, with an acreage of 163,366, has a population of approximately 724,000 and a valuation of nearly £9,000,000. The functions of the city include control of the traffic, the control of licensed vehicles for hire, roads and footways, storm-water drains, bridges, parks, gardens and playgrounds. The operation of wholesale and retail markets for fruit and vegetables, produce and general merchandise, public weigh-bridges, public abattoirs and markets for cattle, sheep and pigs, horse bazaars, electricity for light and power, health functions, infectious diseases and hospitals, inspection of food premises, owners of real estate, etc. Water and sewage, tramways and fire brigades are controlled by three separate boards. The control of the police for the entire state is under the state department.

Within the city proper the total area of parks, lands and reserves is 1,834 acres. Of this, 49 acres are vested solely in the City Council, and the Council as a committee of management has under its control 13 parks, gardens, reserves and squares with a total area of 525 acres. In addition to the foregoing, 53 acres of parks and gardens are controlled jointly by the Board of Land and Works and the city corporation, and an area of 1,210 acres, which consists of Crown lands and lands vested in special trustees, is



A SCENE ON COLLINS STREET, MELBOURNE, AUSTRALIA

also within the boundaries of the municipal corporation.

Electric Supply Department

The city of Melbourne has been lighted by electricity from its own power house for 26 years, and the growth of the electric supply department during this period is of interest. The original plant for lighting the city electrically was obtained in 1892. Altogether, 650 arc lamps and 1,200 incandescent lamps were installed on what was known as the Thomson-Houston series, then in universal use for such purposes in the United States. At the power house four 300-horse-power engines for local manufacture were installed with 24 arc dynamos each capable of supplying 50 arc lamps. The total capacity of this plant was 1,200 horse-power, whereas to-day the plant capacity installed and on order amounts to approximately 35,000 horse-power. This system of street lighting was in use until the year 1906, when it was replaced by one of a more modern nature.

In 1897 the Council extended the plant so as to make available a supply to private customers. This supply was in the form of single-phase, alternating current, generated at 2,000 volts and transformed to 100 volts at the consumers' premises. Until 1901 the distribution of current was effected solely by overhead wires carried on poles, but in that year a system of underground mains was substituted in the central portion of the city, to give a supply of direct current at 230 and 460 volts. At the same time the Council completed arrangements for taking over the interests of the three private companies which were then engaged in supplying electricity to consumers in the city. The cost of this transfer amounted to about £50,000, exclusive of a sum of about £30,000 which was spent in rewiring consumers' premises to enable them to be connected to the Council's supply system. Five small direct-current generating plants aggregating about 2,000 horse-power, which were installed at the power house in connection with this development, have since been sold to make room for the latest extensions.

Further extensions to the plant at the power-house and at the Heffernan Lane substation have taken place at various times. These are listed in the following table:

1905-6—Two 1,000-horse-power Allen Crompton direct-current generators
1907—One 1,000-horse-power Allen-General Electric direct-current generator
1907—Two 1,000-horse-power British Westinghouse single-phase turbo generators
1910—One 2,000-horse-power Allen-General Electric direct-current generator
1912—Four 2,000-horse-power British Westinghouse rotary converters
1912—One 2,000-horse-power Tudor battery
1913—One 1,300-horse-power British Westinghouse rotary converter
1913—One 3,300-horse-power Belliss Siemens three-phase turbo generator
1914—Two 5,500-horse-power Willans Siemens three-phase turbo generators
1914—One 2,000-horse-power British Westinghouse rotary converter
1918—One 7,300-horse-power British Westinghouse three-phase turbo generator
1919—One 2,600-horse-power General Electric Company U. S. A. rotary converter

Provision has also been made for the necessary boilers and auxiliary plant to supply the steam necessary for this additional generating plant. To meet the expected demand of the winter of 1920-1921, one 6,600-horse-power General Electric Company, U. S. A., frequency changer was ordered. This machine will deliver 6,600 volts at 50 cycles at the power-house bus bars from a 20,000-volt, 25-cycle supply transformed down to 6,600 volts at 25 cycles. The energy is supplied by the Victorian Railways Newport power-house.

As an ample supply of cooling water is necessary in order to obtain the highest economy from turbo generators, a new system of supplying water from the River Yarra is in operation. A tunnel of reinforced concrete has been constructed from the river to the power-house, where four large centrifugal pumps have had to be erected to raise the water and circulate it through the condensers. Each of these pumps is driven by a 125-horse-power motor and is capable of dealing with 500,000 Imperial gallons per hour. To give an idea of the amount of cooling water required for a modern turbine, it may be pointed out that the 7,000-horse-power turbo generator on order will at full load require 350,000 Imperial gallons of water per hour to be continuously flowing through its condenser. The maximum capacity of the tunnel will suffice for about 30,000 horse-power of generating plant.

Although the primary object in installing these three generators is to supply, through the medium of the converters, direct current to the central portion of the city, three-phase current is also being supplied to the municipalities of Brunswick, Coburg, Port Melbourne and Williamstown, also to the city abattoirs, the Melbourne-Brunswick &

THE TOWN HALL OF MELBOURNE, AUSTRALIA

Coburg Trams and the State Cool Stores.

The City Council has discontinued the generation of single-phase current, which is used at present in the outlying portions of the city and in the Footscray municipality. These supplies are taken through suitable transformers connected to the three-phase system. By the substitution of a rotary converting plant, the gradual displacement of the remaining direct-current generators will be effected at no distant date, and the whole of the generation will then be performed by large-capacity, three-phase turbo generators, which in comparison with the smaller plant originally installed are very much cheaper to install and to operate.

The Annual Statement of Accounts for the year ending December 31, 1919, shows an operating expense of £134,854, shillings and pence omitted, against an operating income of £240,081. This makes a net operating revenue for the year of £105,227 in round numbers, which compares with a figure of £108,782 in 1918. Both the operating income and the operating expense increased in 1919 over the figures for 1918, but it will be noted that the net operating revenue for 1919 is some £3,500 less. When interest, depreciation and other charges have been written off against the account, it leaves a net profit for 1919 of £30,491 15s., as compared with the 1918 figure of £35,227 17s. 11d. As wages and other general expenses showed very little change between 1918 and 1919, the biggest single factor in the increased costs was the item for coal, which advanced from £55,000 to £63,000.

This reduction of the margin of profit in utility plants has been universal during the past year, but there are factors which make the Melbourne plant well prepared to meet it. The charge for lighting units has remained practically unchanged since 1912, and for power units since 1911, and both are low. The scale is variable, that for lighting units ranging from 6 pence to 1 penny; and that for power units from 2 pence to ½-penny. It is obvious that these rates could be increased without hardship to consumers, if the city administration should decide that an increase in revenue was desirable.

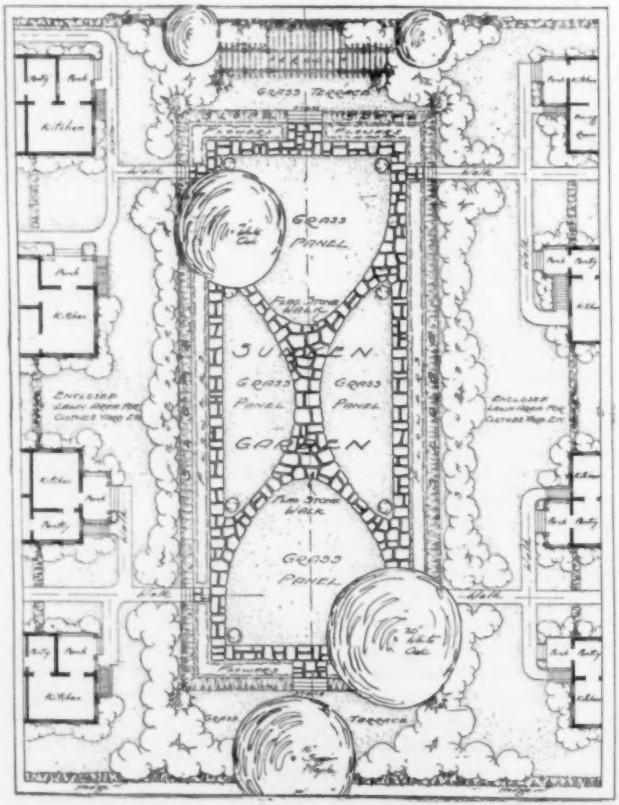
Making the Most of the Back Yard

By E. S. Stiles
Landscape Architect, Charlotte, N. C.

IT is usual in the treatment of suburban properties which lie well within the corporate limits of the city proper to divide the individual lot into two main parts, the front yard and the back yard. The long, narrow shape of such lots precludes any great amount of utilization of the side yard areas because the house itself occupies the greater portion of the width of the lots. Hence the usual custom is to treat these lots as a uniform development on the street or front side of the property by giving all houses a uniform setback of from twenty-five to sixty feet from the street, thereby affording a small front yard which cannot well be treated otherwise than by establishing a good lawn, planting a few shrubs around the porch steps, and sometimes adding a low hedge next to the front sidewalk.

This means that this class of suburban property owner must confine whatever development of the home grounds he undertakes to the back yard; and in the majority of cases this too often results in the utilization of this portion of the property as a clothes drying area, a small vegetable garden, and, even worse, a general repository for odds and ends. However, if careful thought is given to the proposition and sufficient attention paid to the community spirit for the pooling of individual lawn areas, much may be done in the way of utilization of this back yard area as a place for private recreation for the owners of the properties adjacent.

This will apply equally well to two houses which back directly upon each other, a group of houses, or even a whole portion of a small block. And indeed, from a community standpoint, these last have a distinct advantage over lots of a larger area, as they are usually too small to admit of vegetable gardens of sufficient size to pay for their construction and maintenance, while the garage problem is usually solved by the owners of these properties keeping their cars in some nearby garage. The proprietor of a suburban home with a greater lawn area is usually obliged to build his



PROPOSED DEVELOPMENT OF A COMMUNITY BACK YARD GARDEN—THE INTERIOR COURT AREA OF A SUBURBAN BLOCK

garage upon the property itself, thereby cutting off a considerable portion of the available lot space of the back yard. The owner of the small suburban lot in a closely built up community needs to devote only a small portion of his back yard to the drying of clothes, while the remainder of the yard, not large enough for a garden and consequently in reality often a waste space used as a dumping ground for miscellaneous portions of the family belongings, is frequently unsightly and generally poor in character.

The accompanying illustration shows one possible and entirely practical means of community utilization of this waste area. Experiments of this character have been tried out in several of the larger and more closely built up cities of this country. Such a development affords sufficient space for the drying of laundry and other necessary back-door activities, gives perfect seclusion from the street, and at the same time privacy from the back doors of the houses themselves, by means of the shrubbery border which completely surrounds the garden area and from the fact that this area is depressed slightly below the level of the lots themselves.

A garden of this character will produce sufficient cut flowers for the tables of the neighboring families and has sufficient flowering area to afford a bright and cheerful appearance throughout the entire season. It affords a play space for the children in the morning and afternoon and a sheltered promenade for the older members of the family after work is over in the evening, or an attractive setting for the holding of outdoor afternoon card parties and little informal garden affairs in the evening. The extensive use of the stone path means dry footing even after the hardest rain and also a minimum of attention from the family lawn mower.

Such treatment is simple in character, easy of construction, and with slight modifications adapts itself well to the usual topography of city lots. The cost of flowers, shrubbery, materials for the walk, etc., will total less in the expense column than would the cost of the individual landscape treatment of each lot as a separate unit. The throwing of all waste space into one available community area makes the most out of every inch of the land involved. The plan in its entirety may not be applicable to all city blocks for which it may be used, but it is closely modeled after several developments which have actually been constructed; and in the majority of instances it can be quite closely followed by slight alterations in the shape or extent of the design.

Such utilization of the back-yard area will go a long way toward stimulating a close community interest; it will afford a place of recreation and privacy for young and old, especially in those portions of the city where a public park can be reached only by a long hot walk or a tedious ride in a crowded trolley car after the day's work.

More Motor Trucks for Street Cleaning

The city of New York has awarded a contract to The White Company for furnishing 212 5-ton dumping trucks for use by the Street Cleaning Department. It is the largest single order for motor equipment ever placed by a municipality. The trucks will be used for all phases of street cleaning work, including the removal of ashes, garbage and snow.

Seventy-five of the trucks will be equipped with removable bodies and may be readily converted into flushers and sprinklers by the substitution of 1,200-gallon tanks to replace the dump bodies.

The contract price for the entire order of heavy-duty trucks, including "Studebaker Model" flushing equipment for 75 of the machines, amounts to the sum of $1,422,190.55.

New York City spends millions of dollars annually for street cleaning work, and the action of its officials in providing the Street Cleaning Department with a huge fleet of trucks, it is estimated by the city's engineers, will save the municipality large sums of money each year, and—what is of equal importance—will give the city ample protection against the blocking of thoroughfares by heavy snowfalls. The plan adopted by New York for keeping its streets clean will be watched with interest by cities throughout the country.

The Construction of Public Works

An Outline of Methods of Carrying Work Through Successfully

By James P. Wells
Consulting Engineer, Rochester, N. Y.

EVERY municipal official who has conceived the idea of a public works improvement, has brought the subject to the attention of the citizens and then successfully carried it through to completion, feels, with justice to himself, a great degree of satisfaction. Few of his fellow citizens, however, will realize how difficult his task has been. The starting and the carrying out of a public improvement of any magnitude is often an arduous and annoying task to the particular board or individual in charge of the work. The writer has endeavored to outline in this paper some suggestions based on his own experience in these matters which may be of value to public works officials.

What Improvements are Needed?

First of all there must be the need of the improvement, whether it be a bridge, a new water-supply, a filtration plant, a sewer system or a sewage disposal plant. If the officials realize that the improvement is needed, the very first point to determine is the best way to make it and what it will cost. Often this very matter of finding out what should be done and how much it will cost has required six months, a year or often two years, simply because conflicting opinions and ideas were voiced by different officials and prominent men, none of whom had any technical knowledge whatever. This preliminary delay and period of indecision can always be forestalled if the proper official or officials will immediately obtain the services of a competent engineer, seek his advice and secure cost estimates. In commissioning an engineer to do such work he should be given a free hand. He should not be told to investigate one particular project, but to find out what is the best way of solving the problem. Ordinarily if a man is sick he calls a doctor. He does not tell the doctor what to prescribe, but lets him use his own judgment. Many municipal officials waste months in conjecturing about matters of which they have no technical knowledge, and when they do ask an engineer to pass upon the matter they do not give him a free hand, but indicate to him what kind of report they want him to write, based on their own preconceived ideas.

Publicity Essential

Once the engineer's report is received and the city official has decided upon what action to take, the next step is to let the public know all about the proposed improvement that it is possible to let them know. One of the best ways to do this is to have the engineer's report printed. His report should be devoid of all technical phrases and should state in the clearest possible manner what should be done and why it should be done. The construction of most public works is not a complicated problem and can be readily explained to the average citizen. The editors of the newspapers in the municipality should be made thoroughly acquainted with the details of the proposition.

The method too often employed has been to let both newspapers and public have as little information as possible in regard to the improvement, and then expect the people to vote for it. The writer has had experience with both methods of carrying out public works. Where the citizens of a community have known all the details of the improvement, they have been well satisfied from start to finish. Where the reasons for making an improvement have not been known to the public, there has always been more or less dissatisfaction.

Another very effective means of informing the public as to the merits of a proposed public improvement is by public meetings. The engineer and some of the municipal officials should be present at the meeting and explain the proposition, and if possible use lantern slides to illustrate different phases of it. An opportunity should be given for the citizens to ask questions.

What may appear to be a very simple

matter to those who have not had the experience is that of having the papers prepared for a municipal election where a bond issue is to be voted upon. The correct carrying out of the proceedings in a municipal election to vote on a bond issue is by no means a simple matter, and it is one in which the village or city attorney should use the greatest caution. Many times a technical error in this connection has invalidated the entire bond issue and it has been necessary to hold another election three or four months later, or perhaps a year later, thus entirely upsetting the plans for the improvement, causing the officials a great amount of annoyance, and often costing the community a large amount of money by reason of the delay. There are attorneys who make it their special business to do such work. The fee is comparatively small and it is money well spent to get the advice of specialists in such matters.

Once the funds are available to carry out the improvement, the next step is to decide who shall take charge of the work. This depends largely on the organization which the municipality already has, and upon the character of the work. In most large cities any work of this nature can properly be done under the city engineer, for the large cities can usually afford to employ a man of wide experience. In small cities it may result in a great waste of money if the city engineer is allowed to take charge of the whole public improvement unless he has had special training in that particular line of work. To be sure, it may give him experience, but no municipality can afford to pay for that experience. In small cities the best course to pursue is to put the public improvement directly in charge of an engineer who has had special training and who has made it his business to carry out the construction of similar public works. It will not do simply to get the advice of such an engineer. For the best results he must be given entire charge of the work so that it will be possible to fix the responsibility upon him.

Prosecuting the Work

The first step the engineer will take after he has been engaged will be to make accurate surveys and detailed plans and specifications of the proposed structure or structures. After these have been prepared, the method of carrying out the construction must be decided upon. There are four methods by which public works may be constructed. In some cases there are legal restrictions which prevent a municipality from having a choice of any of the four methods.

The first method is the day-labor plan, by which the city pays directly for the labor and materials. Ordinarily this method of carrying out construction work, especially where the project is of any size, has not been satisfactory. The trouble has been that the city has not an experienced organization to carry out the work, and politics is liable to decrease the efficiency of the force.

The second method is by the cost-plus-percentage contract. In this case the contractor does the work, hires the labor and buys the materials, the city recompenses him and also pays him a certain percentage on the cost of the work. The great trouble with this form of doing the work is that the work is delayed and the cost is increased in order to increase the percentage. It may be argued that if the contractor is honest he will do this. He may not intend to do it, but the men who are working for him will find out that it is a cost-plus-percentage contract and they will think they are doing the boss a good turn by increasing the cost. While there are exceptions, most of the cost-plus-percentage work that has been done has been done extravagantly.

The third method is the cost-plus-a-fixed-fee, by which, as in the second case, the contractor pays for the labor and materials and is recompensed by the city for them, but is paid for his profit a fixed lump sum or fee. With this method there is no incentive to increase the cost, because, as a matter of fact, the profit will be the same. Instead of there being the desire to make the work last, there will be a desire on the part of the contractor to get it done as quickly as possible in order that he may go somewhere else. The shorter the time it takes him to do the work, the less will be his overhead expenses.

The fourth method is by advertising work and receiving competitive bids. After the bids are received, the contract is then awarded to the lowest responsible bidder. The great trouble in letting contracts in this manner is the difficulty in deciding whether the lowest bidder is responsible; that is, whether he has sufficient capital to

carry out the work, and whether he will carry the work through to completion regardless of loss if he gets into difficulties. It does not always pay to let the contract to the lowest bidder. Those who have the decision in the matter should let the contract to a bidder whom they know to be competent, who has done work of a similar nature, who has sufficient capital to carry out his work, and whose reputation is such that they can be certain he will carry his contract through to completion regardless of possible loss. With such contracts it is customary for the contractor to give a bond. Sometimes these bonds are of value, and sometimes they are of absolutely no value. If the contractor fails to carry out his contract and the bonding company is asked to go through with it, the situation often arises that the bonding company has found some excuse for not fulfilling its bond, and when the matter is taken to the courts there is a long-drawn-out legal battle which may cost more than the amount of the bond. The best way is to settle such matters out of court if possible.

Of the four methods of doing construction work, the third method, that of a cost-plus-fee basis, is considered by many to be the most satisfactory. If it is not possible for the city to do work in this manner, then the best method is the fourth, that of letting the work on a competitive basis.

Once the contract has been let and the work is under way, it may be largely left in the hands of the engineer in charge, and he will each month render estimates to the city officials which will state the sums the contractor is entitled to for the preceding month. The engineer has a position of considerable authority, as he is in the position of a judge between the municipality and the contractor. It is impossible in a set of specifications to cover every contingency which will arise as the work proceeds. Many engineers have made the great mistake of splitting hairs with contractors. Their requirements have been so rigid that they were beyond all reason. The writer once knew an engineer who spent three days in a creek with his transit trying to set within an eighth of an inch the location of a huge form at the bottom of a dam which was to be 60 feet thick. He never succeeded in getting the form set to this degree of accuracy, but the delay occasioned by his attempt and the trouble to which the contractor had to go in trying to accomplish what the engineer wanted cost the contractor a great amount of money. Naturally, to make up his loss, he slighted the work somewhere else.

Oftentimes it appears, after work has been started, that a change may be made in the class of material, or changes in the plans which may improve the character of the structure or make things easier for the contractor and still accomplish the same result. In such an event the best course for the engineer to pursue is to have the changes made. His position should be one of assisting the contractor rather than that of trying to hamper him in everything that he does. In the carrying out of public works there is considerable opportunity to give and take. The essential duty of the engineer serving the city is, first, to get the work done in as high-grade a manner as possible, and second, to do this with a minimum of friction.

Municipal Forests are Badly Needed

There is approximately three times as much timber cut from the forests of the United States every year as is grown in a year. If we begin at the present time to protect our cut-over lands from fire and use wholly practical forestry methods to insure reproduction after logging, we could secure in the next 50 to 60 years an annual production of over 60,000,000,000 feet of lumber a year without lessening our forest capital, according to a statement of Henry Graves, formerly chief of the United States Forest Service, Department of Agriculture.

Counties and municipalities can do much to lessen this tremendous loss through the establishment of communal forests and preserves. These forests will mean a comparatively small initial expenditure, and in the course of 25 years will be vast sources of income for the city. Officials with sufficient foresight can thereby look forward to a possible decrease in taxes and to providing money for the retirement of future bonds through a wise present reforestation policy.

Paving the Jefferson Highway in Rice County, Minn.

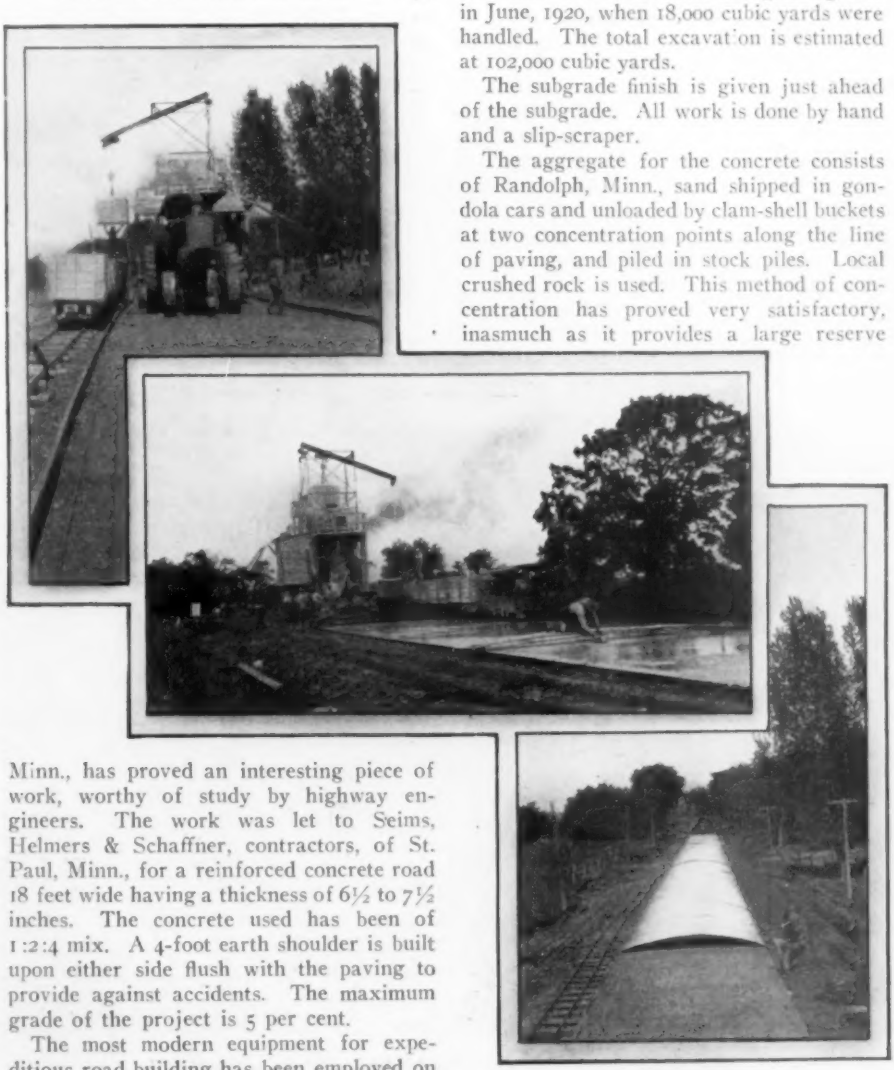
By P. C. Brown
Assistant Engineer, Rice County, Minn.

THE construction of the portion of the Jefferson Highway between Northfield and Faribault in Rice County, Minn., has proved an interesting piece of work, worthy of study by highway engineers. The work was let to Seims, Helmers & Schaffner, contractors, of St. Paul, Minn., for a reinforced concrete road 18 feet wide having a thickness of 6½ to 7½ inches. The concrete used has been of 1:2:4 mix. A 4-foot earth shoulder is built upon either side flush with the paving to provide against accidents. The maximum grade of the project is 5 per cent.

The most modern equipment for expeditious road building has been employed on this highway. The grading equipment included two elevating graders, one 8-foot blade grader, and fourteen 1½-yard dump wagons. All of the grading equipment has been handled by horses. The monthly maximum for excavation and grading was in June, 1920, when 18,000 cubic yards were handled. The total excavation is estimated at 102,000 cubic yards.

The subgrade finish is given just ahead of the subgrade. All work is done by hand and a slip-scraper.

The aggregate for the concrete consists of Randolph, Minn., sand shipped in gondola cars and unloaded by clam-shell buckets at two concentration points along the line of paving, and piled in stock piles. Local crushed rock is used. This method of concentration has proved very satisfactory, inasmuch as it provides a large reserve



VIEWS ALONG THE JOB
Upper—Industrial railway serving mixer. Middle—The mechanical tamper and finisher. Bottom—The covers for the completed road.

supply. Bulk cement was tried out at first but caused too much waste so was abandoned. Material is transported from the concentration point to the mixer by an industrial railway, using two gasoline and two steam locomotives with trains averaging from five to seven cars. Each car carries the aggregate, including cement for one batch, or ¾-cubic yard, of concrete. The cars are loaded from hoppers filled by the clam-shell buckets.

One ¾-yard Lakewood mixer, equipped with a hoist for lifting the batch boxes, furnishes the concrete. This is pulled by a tractor which furnishes the steam to operate the mixer and hoist. The batch boxes are equipped with dump bottoms and are emptied into the hopper which supplies the drum. A one-minute mix has been used throughout. After the concrete is placed, a finishing machine is run over it, tamping and finishing the surface. After this a canvas cover stretched on a frame is placed over the road until the concrete is set. Afterwards the concrete is covered with earth and kept for two weeks.

A force of 95 men is used to handle the unloading apparatus, industrial railway, mixing plant and finishing apparatus. During the month of May, 1920, 15,199 square yards of concrete were placed.

When the first three miles of paving were thrown open to traffic, it was noted that the road was rather rough on the slopes. Careful examination and consideration of the laying of the concrete and consideration of the time element led to the conclusion that this roughness was due to the fact that the wet concrete had bulged up in the rear of the finishing machine. In order to correct this, two finishing machines were put on and more care was taken in placing the forms. The roughness has also been lessened by using a slightly wetter mix on the slopes.

This work is being carried on under the direction of P. L. Hazard, County Engineer, and D. J. Bleifuss, engineer in charge of paving construction for Rice County.

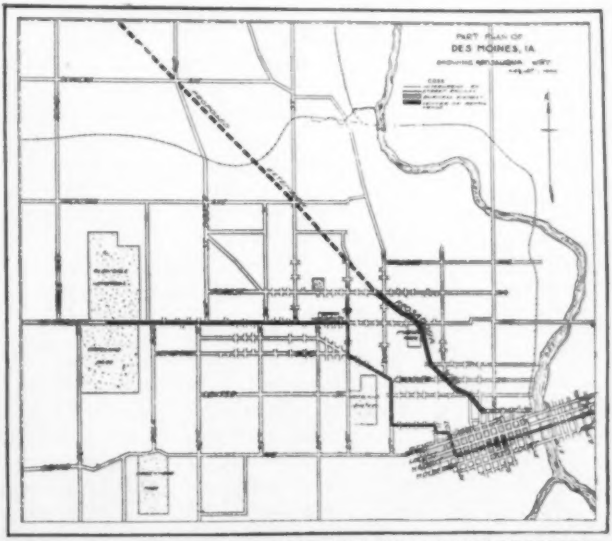
THE ALEXANDER BRIDGE ACROSS THE SEINE, PARIS, FRANCE

Des Moines' Newest Diagonal Thoroughfare

By Frank E. Wetherell
City Planner

THE northwest section of Des Moines has long been one of the best and most populous residential sections of the city. This section never had a satisfactory thoroughfare leading direct to the main business section. The University Street car line makes no less than eight turns in going from Sixth and Walnut to Twenty-fifth and University Streets, about two miles, and general traffic follows about the same route, zigzagging around the two sides of the squares in order to avoid grades and poor pavements.

There has always been a natural diagonal way of easy grades from the down-town district, running northwest out to about Twentieth and Foster Streets. When one looks the territory over and examines the city map, it is most surprising that this has not been opened up long ago into a thoroughfare, as it intersects the four main east-and-west streets, Center Street, Crocker Street, University Avenue, and Forest Avenue, all of which lead out into this northwest section of Des Moines.



KEOSAUQUA WAY, THE NEW DIAGONAL ARTERY IN DES MOINES, WILL SERVE THE NORTHWEST QUARTER OF THE CITY AND THE FARMING COUNTRY BEYOND

Thirty years ago this was a ravine, generally filled with flood water after a heavy rain, but about that time it was being provided with a large concrete box culvert, now known as Birds' Run sewer. The ravine was then filled up and the adjoining land reclaimed for use. At the time the sewer was built it was proposed to make a street up through the valley which followed the old ravine, and it could have been done for less than $20,000 at that time. But objectors killed the proposition. Dwellings of the poorest kind, generally for colored people, and cheap business buildings, were erected all through this district, until the ravine and sewer were almost forgotten.

But the northwest section was growing rapidly. The inconvenience and increased cost of the poor traffic connection was being felt more and more seriously every year. So in 1916 the Town Planning Committee proposed to the City Council, and the City Council immediately adopted the necessary resolutions for the construction of a thoroughfare 110 feet wide, following this Birds' Run sewer and to be called Keosauqua Way.

Meeting the Objections

The war coming on delayed until 1918 the active steps looking towards actual construction. Hardly had the City Council taken hold of the project vigorously with the intention of seeing it through, when opposition meetings of all kinds were held all

TYPES OF STRUCTURES IN DES MOINES WHICH ARE BEING REMOVED BY THE BUILDING OF KEOSAUQUA WAY

through the district and many protests were filed. The objectors employed the usual fireworks and exaggerated statements regarding excessive cost.

But a carefully prepared estimate and a dummy schedule placing the maximum cost at $607,000, and the maximum cost for each abutting typical residential lot at about $140, together with some statements of increased valuations from similar improvements, brought many objectors to the side of the boosters. The estimates were afterwards verified within a very small margin when the condemnation proceedings had been completed. The values of the properties all through the district have been increased, even before a building had been removed or a yard of grading done, so that the remaining objectors have no arguments left.

To-day the land for the thoroughfare has all been purchased, many buildings have been removed and the right of way is being rapidly filled and graded. By next year we hope to begin paving so that it can soon be opened for public use.

Property Values Increased

Keosauqua Way has demonstrated two things to the Des Moines people: first, that objectors are expensive pests; second, that property values will readily respond to properly planned and rational improvements. Thirty years ago Keosauqua Way could have been built for less than $20,000; today it will cost $600,000, not counting the paving. During those years millions of dollars have been spent in time and inconvenience by the people going back and forth over the old crooked and roundabout way.

Without exception the abutting properties have more than doubled in value, some of them five times. For instance—and these are actual transactions and the lowest figures are all prices asked or offered within two years prior to the time when the thoroughfare was assured—at Eighth and Park Streets a quarter block 132 x 132 feet was offered at $8,000, later at $14,000. A remnant triangle, 60 x 75 feet off this same quarter-block, has just been leased at a valuation of $15,000. At Ninth and Center Streets, business property has been valued at $50 per front foot for years. Owners are now refusing $200. Near this same property was a four-family brick flat building valued by the owner at $14,000 to $16,000. He was recently offered $42,000.

At Fifth and Chestnut Streets, the downtown end of the thoroughfare, property was appraised at $12,000 in 1914; 20 feet was sold for $13,000, and the owner was offered $44,000 for the balance, but is holding it at $48,000. At Thirteenth and Crocker Streets one lot and two little old houses, offered for years at $1,400, were sold for $7,000, and the new owner now refuses to put any price on the property. And there are many similar cases to prove the same story. Adjacent properties are likewise increasing in values, because of the improvement.

What Educational Methods Can Do in Housing

By Bleecker Marquette
Executive Secretary, Cincinnati Better Housing League

CARELESSNESS and ignorance constitute two of the most difficult obstacles in bringing about better housing conditions. While most American families are intelligent and self-respecting, there is a substantial number of families in every community who have become accustomed to living under conditions of dirt and disorder. They live in our worst houses. Little is done for them and they are capable of doing but little for themselves. In most cases, living all their lives under slum conditions, they have, as it were, imbibed slum concepts and, unaided, they make but little effort to lift themselves above their environment.

This element of our city and rural population receives but little attention and yet it serves as a constant barrier to constructive attempts to improve housing conditions. Ignorant, slothful, sometimes destructive, often in arrears in their rent, these tenants discourage even the progressive, fair-minded owners and real estate men from trying to keep their properties in good condition.

This is in no sense a new view. Housing specialists have known it and stated it for years. The Better Housing League of Cincinnati, a social service organization receiving its funds from the Cincinnati Community Chest, has for two years been making a strenuous effort to find the solution, realizing that until something constructive is done about it, satisfactory progress in housing will be seriously handicapped.

The Visiting Housekeeper Plan

In 1918 the League started a system of educating tenants and of securing the coöperation of property owners through a Visiting Housekeeper. A small section, about fifteen blocks, occupied by colored people, where housing was the worst, was chosen for the experiment. The plan consisted in having the Visiting Housekeeper, an intelligent trained colored woman of mature age, supervise every house in the district, visiting every family and every owner. She soon learned which families needed instruction and which houses needed attention. She then set about gaining the confidence of the families by telling them her purpose to improve the condition of the house and asking their help. She explained to them that owners would not make repairs unless they knew the tenants would take good care of the property, keep their homes clean and orderly and pay their rent promptly. If they would agree to do that she promised to go to the owner and ask him to repair the leaking roof, remove the obstruction from the toilet and paint the rooms. She would go back to the house periodically, note the improvements, if any, and suggest methods of keeping that particular flat a bit more sanitary and orderly—keeping the food covered, washing the bedding, cleaning the floors or any one of a number of things the housewife had never been trained to see.

A simple, attractively illustrated pamphlet called "Home, Health, Happiness," telling in the clearest possible way the tenants' rights and duties, was given to each family where the Visiting Housekeeper felt it would be of help. As soon as she saw progress she would interview the owner, tell him her method of work, assure him of her desire to help him in the supervision of his house, ask that he make repairs she regarded as essential, and promise constant supervision to see that the repairs were appreciated and that his property would not be destroyed. Often her best ally would be the children, who could be encouraged to help the mother with the housekeeping or to take full charge of caring for the yard and who often could be won over when the parents appeared utterly unresponsive.

The Visiting Housekeeper idea did not originate in Cincinnati. It was started in New York in 1914 by the Tenement House Committee and the Tenement House Department. The work was done in New York by three women inspectors of the Tenement House Department. It was limited there to work solely with the tenants and,

because the territory to cover was so vast, consisted usually of but one visit to a house. It was discontinued in 1918. The Woman's Municipal League of Lawrence, Mass., in 1917 started work along similar lines in that city, attempting to make the work self-supporting by charging owners a fee for the services. Their Visiting Housekeeper was later turned over to the Health Department. In Cincinnati the plan of charging a fee was tried out for a year, but found to be unsatisfactory for a number of reasons. Unless the fee were very high the Visiting Housekeeper could not supervise enough houses to pay her salary, frequently the very owners whose property most needed supervision were unwilling to pay the fee, the time consumed in trying to collect the fees was too great, and all in all it was found much more satisfactory not to be under the obligation to owners that resulted from their payment of a fee.

Does It Work?

A year of experiment in one of the most difficult sections of the city proved the work to be unquestionably effective. It has now been established permanently as a part of the League's activities. Two more Visiting Housekeepers were added during 1919 and in 1920 two more will be added, one of whom has already begun work. It will be extended as rapidly as possible until enough workers are provided to cover every section of the city where such education is needed.

A careful report has been kept of all work done; a system has been evolved for recording conditions found and improvements made in every house and in every family reached by the Visiting Housekeepers. The following is a table of the results secured by three Visiting Housekeepers from January 1 to December 31, 1919.

1. Improvements in Housing Conditions

Number of housing inspections	2,796
Parts of houses (walls, yards, rooms, etc.) cleaned	952
Parts of houses repaired	537
" " " painted	340
Damp rooms vacated	3
Dark " "	7
Houses torn down	16
Privies torn down	4
Catchbasin toilets abolished	2
New flush toilets installed	16
New sinks installed	53
Gardens planted and flower boxes made	29
Houses remodeled	6
Miscellaneous improvements	302
Total Defects Remedied	2,267

2. Improvements in Housekeeping

Visits to families	2,362
Housekeeping improved	152
Back rent paid up	115
Removed to better quarters	93
Room overcrowding eliminated	27
Cases of sickness and want discovered and reported for relief	61

3. Cooperating With Owners

Owners endorsing Visiting Housekeeper work	189
Owners requesting Visiting Housekeeper services	64
Caretakers supplied	15

These tables represent 2,267 housing defects remedied by the Visiting Housekeepers by persuasive means through the coöperation of owners and tenants. In addition, some 600 defects, or about 20 per cent of the total of 2,865 defects handled, were improved by city departments—the Housing Bureau of the Building Department and the Sanitary Bureau of the Health Department. Both of these departments are remarkably active and efficient. The coöperation between them and the Better Housing League is practically ideal.

The Human Touch

One of the leading housing specialists of the country, speaking in the Housing Course given at the University of Cincinnati last year by the Better Housing League, referred to the interesting results obtained by the Visiting Housekeepers and said that in his opinion the human touch they retain in their work explains its effectiveness. "Put an inspector's badge on a man or woman," he said, "and he immediately bristles like a human hedgehog!"

A Model Flat

The simplest and the most concrete are the things that help in instructing tenants. In order to show families who are unused to cosy, orderly homes how easy it is to make them so, the League established on January first a Housekeeper Center consisting of three typical tenement rooms in the heart of the congested colored district. The flat was no better and no worse than the rest in the neighborhood. The rooms

have been furnished simply and inexpensively, using every possible idea to make them comfortable and convenient—the cost of furnishing per room was $50. The flat, in charge of one of the Visiting Housekeepers, is used for classes for mothers and for young girls in housekeeping, in sewing, in rug making, and in cooking. In order to keep the flat open every day a woman lives there, makes garments to be sold to the people in the neighborhood and receives the women who come in to look at the flat. Through the Negro Civic Welfare Committee, a bureau is about to be opened at the flat to supply a pressing need—that of finding homes for colored families. Every family that comes to the flat is visited by the Visiting Housekeeper and advantage taken of the opportunity to encourage improvements in their homes. An excerpt from her report, January 16th to May 24th, will indicate what is being accomplished. "A total of about 400 persons have visited the Center for various purposes. The majority were women. Thirty group meetings have been held. Have given two entertainments, one patching party for the mothers and a membership contest party for the girls. The housekeeping in twelve homes has been decidedly improved, as a result of the activities of the Housekeeping Center. Seven yards are being beautified with grass and flowers. Three vegetable gardens have been planted." The accompanying photographs show one instance of improvements brought about by the Visiting Housekeeper.

A DILAPIDATED HOUSE IN CINCINNATI WHICH THE VISITING HOUSEKEEPER INDUCED THE OWNER TO REPAIR

THE SAME HOUSE AFTER THE REPAIRS WERE COMPLETED

How the Visiting Housekeepers Work with Other Groups

Aside from the chief aim of the Visiting Housekeeping work, namely, educating tenants to take better care of their homes, one of the important results is the reaction of real estate men and owners. Many of them who ordinarily would oppose the efforts of a housing organization have been won over by this plan. It has the special merit of

proving to them that the League does not exist for the sole purpose of making life miserable for the owner, but on the contrary fully appreciates the difficulties of the landlord who has to deal with careless and destructive tenants.

Social service agencies find the Visiting Housekeepers a useful ally and constantly refer their most difficult families to the League. The Visiting Housekeepers, on the other hand, find many worthy families never before reached by social service agencies because they are too self-respecting to ask for aid and yet seriously in need of medical or other attention. Incidentally this gives the Visiting Housekeeper an opportunity to befriend such families and to gain their complete confidence.

Another important advantage of this work is that it provides a housing organization with an excellent method of keeping closely in touch with the way city housing regulations are being enforced. In Cincinnati the city departments charged with enforcing the housing laws are so efficient and so coöperative that a check-up is unnecessary.

Reaching the School Children

The present generation will not witness a transformation in the housing of the masses. The next generation may if the children of to-day are shown the vital importance of good homes, are given a sufficiently strong desire to live in decent houses and are taught how to take care of a house. With this in mind, the Better Housing League, in coöperation with the Board of Education, has introduced a method of getting this information to the school children, especially in the schools in the tenement districts. Two years ago illustrated talks were begun in all these schools to the pupils from the fifth to the eighth grade. After these talks the eighth grade pupils study the League's educational pamphlet, "Home, Health, Happiness," and then engage in an essay contest on "What I Have Done to Improve My Home and Neighborhood." A certificate is awarded by the League for the best essay submitted from each school. This work has been made a complete success by the wholehearted coöperation of the superintendent, the principals, the eighth grade teachers and the Civic and Vocational League (a unique school organization sponsored by a committee from the Chamber of Commerce and the Woman's City Club, the purpose of which is to train the children to an active participation in civic matters). This year a similar plan was introduced in the parochial schools and was very cordially received.

A most encouraging development is the superintendent's plan to introduce into the high schools this year a more thoroughgoing course of civics than has ever been used before, including some essentials of housing and city planning.

The League's Activities

This educational work is but one of the activities of the Better Housing League. It works with the city departments for better enforcement of the laws, seeking to secure needed increases in their inspection forces and to gain for these departments the strong backing of the public, suggests revisions of the housing regulations when needed, is working with other organizations for a comprehensive city plan and a zoning system, and after a careful study extending over a year is now ready to organize a company to construct homes to meet the increasing demand.

Feature of Coming Municipal Improvements Convention

An interesting feature of the convention of the American Society for Municipal Improvements, in St. Louis, October 12-15, will be the round table discussions of technical matters. The convention is reserving half of the main dining-room of the Planters Hotel, which is to be set up with round tables, in the center of each of which will be a sign designating some particular subject of importance, such as wood block paving, water purification, city lighting, sanitation, etc. The tables will be in use for breakfast and luncheon during all of the four days, and each will be presided over by an expert with a national reputation in a particular line. Visiting delegates may change from table to table during the meeting and join in the discussion of the particular subject scheduled, thus facilitating the exchange of ideas.

The Story Hour as an Activity of the Public Library

By Wendell F. Johnson
Secretary of the Publicity and Efficiency Commission, Toledo, Ohio

THE public library in America has, during the last few years, widened its field of activity until it has come to occupy a very important place among the country's educational institutions. Perhaps one of the least known additions to its field of work has been the weekly story hour, now a recognized part of the public library program in most of the cities of the United States. In Toledo, Ohio, where the almost simultaneous completion of five new branch libraries gave unusual impetus to all library work, a unique opportunity was given to watch the growth of interest in the story hour and to study its results.

For several years the Toledo Public Library had conducted occasional story-hour periods for young children. But they were held at irregular intervals, and the number of children reached was always small. The completion of the five new branch libraries provided a means by which the story hour could be taken into every section of the city and made available to many more children. About the first of 1919 it was made a part of the regular program at each of the libraries. Each Saturday afternoon the librarians at each branch and at the main library narrated to large groups of eager, interested little ones some of the best of the world's child stories.

The results of this program soon became astounding. Interest in the story hour, as measured by attendance, was cumulative from week to week, until the capacity of the libraries was greatly taxed to accommodate the crowds that wanted to hear the stories. As many as 300 children appeared at a single branch on a Saturday afternoon, to attend the story hour. Because the auditoriums in the libraries are small, it became necessary to handle the crowds in three installments, telling the stories of the afternoon to one group after another.

The greatest jump in attendance occurred after a notice had been inserted in the newspapers, announcing the Saturday afternoon program. Illustrating this sudden increase, the attendance at Jermain branch was typical of that throughout the city. On

THE LINE-UP FOR THE STORY HOUR AT THE TOLEDO PUBLIC LIBRARY

one day, 40 children attended the story hours at that branch. The following Saturday, after the newspapers had carried an announcement of the story hours, 208 children crowded into the same library. The increase was so great that it was considered more than the libraries could properly handle and little further publicity was given the weekly event. Attendance dropped the following week to 172 and then to 75. Since that time there has been a gradual increase from week to week, as interest spreads among the children of the several communities.

The interest of the newspapers of the city has been secured, and each of them has carried a special feature story on the story hour at one of the branch libraries. Announcement is now made in all the newspapers each week of the stories that will be told on that Saturday. This publicity, together with posters at each of the libraries, has brought out the children in swarms to hear the stories.

To insure the success of the story-hour project, Librarian Herbert Hirshberg made careful preparations. Recognizing the importance of the entire juvenile department of the public library system, he added to the library staff a supervisor of children's work, and brought Miss Ethel Wright to Toledo to fill the position. She is conducting a course for the assistants at the branch libraries in the subject of library service for children. In these classes, held twice each week, much attention has been given to the art and theory of story telling. Miss Josephine Leach, supervisor of teacher training in the public schools, and an expert in story telling, assisted Miss Wright in this work. In consequence, the entire branch library staff received special training in handling the story hour. Special emphasis is placed on the selection of suitable stories and on methods of presentation.

In selecting stories to be told the children, only the best children's literature is used. Stories are taken from the folk-lore of the world, ancient myths and legends, fairy tales, and the great epics. Among the modern stories, Kipling's "Just So" stories, and the Br'er Rabbit tales are favorites. Legendary hero stories have been found to appeal most to boys. The story hour is being conducted on the theory that boys and girls can be interested in good literature by telling them stories of the right type, when such stories would not, perhaps, appeal to them when in book form. Once the boy has heard them told, he will learn to like them, and will lose interest in the Nick Carter type.

An additional attraction offered the children at one of the branch libraries is a victrola which is used at the beginning and the close of the story hour and for relaxation between stories. Records are selected, whenever possible, with reference to the stories to be told on that day. For example, an Indian tale is accompanied by Indian music, and the Uncle Remus stories by negro melodies.

Although the season for the story hour is primarily confined to the cold months, an experiment that has proved successful in Toledo during warmer weather is the holding of the story hour out-of-doors. A vine-covered pergola in the rear of each of the branch libraries has been used for this purpose.

Children from six to twelve years of age are being admitted to the story hour. Recently at the juvenile department of the main library, a separate story hour was started for older children. Eventually the plan is to be adopted in all the libraries. As yet the children are not graded as to age. All are handled together.

The story hour at the libraries has become a permanent institution in Toledo. It is competing successfully with the "movies" as a form of recreation and has taken its place with the public playground and the public school as a means of entertainment and instruction.

Education Versus Compulsion in Health Work

Public sentiment is the one dynamic force of sufficient power to insure necessary compliance with health rules and regulations. Without it health authorities cannot hope to secure adequate health law enforcement, for the average American has a natural tendency to

"* * * flout the law he makes and make the law he flouts."

With it, any law, no matter how drastic, can be effectively enforced for the benefit of the life and health of the many, even though it be to the detriment of the few.

—*New York Health News.*

Forward Steps
Reported to THE AMERICAN CITY by Municipal Officials & Department Heads

Finance Departments

Centralized Purchasing Under Commission Government

DALLAS, TEX.—In August, 1919, the Board of Commissioners of Dallas created a Department of City Purchasing. The numerous departments of the city, as is customary under the commission form of government, are organized into divisions, with each Commissioner responsible for his respective division, the divisions, in turn, being divided into numerous departments. In procuring supplies, material and services it is necessary for the head of each department to make his wants known in the form of a request on the Purchasing Department. This particular form is known as our departmental requisition, and it is necessary that each requisition be approved by the Commissioner of the particular division issuing it, before reaching the Purchasing Department. The requisition is then in line for purchase. After a comparison of various prices from different firms, and also a consideration as to quality, the Purchasing Department awards a purchase order.

The vendor supplying the material renders to the Purchasing Department an invoice which is checked against a copy of the original purchase order on file. If it is correct, the files are then cleared and the transaction is closed so far as the Purchasing Department is concerned. The invoice is then forwarded to the department making the original request, to be placed in the proper channel for payment, which involves its being checked to ascertain whether the quantities invoiced were actually received.

Assuming that the invoice is correct, a voucher is drawn by the department receiving the material, with the invoice attached. The voucher bears the Purchasing Agent's order number, and after the voucher reaches the City Auditor's office, preparatory to the drawing of a warrant, the files of the Auditor are cleared as to this particular order, which has been on file in that office since the award of the purchase order to the vendor. This operation prevents a duplicate payment. Should a second invoice appear, all records would show that the invoice was in channel for payment, and it would be caught before starting through a second time.

Invoices leaving the Purchasing Department are stamped with the dates on which they left their respective departments. All payments are made on five- and ten-day discounts. The stamping of the invoices permits a check against departments if for any reason the invoices are not vouchered promptly. Notations as to special discounts are made on all invoices. Careful attention to this detail saves a great many dollars. Almost every line of stock available for prompt delivery being seriously depleted, an effort is made by the Purchasing Department to place purchase orders only with firms having stock ready for immediate delivery.

If proper coöperation is given the Purchasing Department, all departments are benefited, for it takes far less time to prepare a requisition than to have someone from each department constantly shopping here and there. The different departments are not continually disturbed by salesmen during office hours. The Purchasing Agent is in position to card index the salesman and his product, and if such should be needed at a later date he will be called at that time.

It is worthy of mention that coöperation has been received from each firm and that the city now enjoys a purchase power through this centralized office from whole-

sale firms that heretofore have been indisposed even to quote the city. As they express it, they deal with a single buyer, as is customary in their business. The fact that the representatives of all firms may call at one department instead of being obliged to visit each department of the city, allows them to submit closer figures and facilitates the award of orders. Probably no commercial corporation purchases in a year the varied commodities necessary to operate a city. For example, the first requisition appearing might call for one Ford car; following this a quantity of food supplies might be called for; next in order perhaps a bill of dry goods or medical supplies, or possibly a guinea pig to be used for experimental purposes at the hospitals.

Purchase orders are abstracted to a card record in this office, showing all articles that are purchased and in common need. The card of a certain commodity shows the quantity purchased for a given period by all departments. In view of a central receiving department and stores account, which will permit the buying perhaps of a year's supply and its distribution as needed to various departments, this card record is considered invaluable.

M. M. MURRAY,
City Purchasing Agent.

Police Departments

No Financial Drives Allowed in This City's Streets

St. Louis, Mo.—Like the people of other American cities, the citizens of St. Louis became annoyed by the continued series of hold-ups in broad daylight to which they were subjected by the representatives of more or less deserving organizations, engaged in "drives" to secure funds. The Police Department therefore took steps to protect the city, by issuing the following order:

Commanding Officers:

Now that the war is ended you will see that street solicitations for money are stopped in your district. Workers for legitimate charities will have the right to enter buildings, but they must cease operations upon the streets. This order is especially directed against the practice of placing girls and young women upon the streets to sell buttons, tags and the like. This will not be permitted for any purpose whatsoever.

It has been practically decided that all campaigns to raise funds for foreign relief, perfected after February 1, 1919, will be made jointly and not oftener than once in every three months.

You will understand that this order does not apply to campaigns conducted by the United States Government for the sale of Liberty Bonds, Thrift Stamps and the like.

In stopping these drives, the Police Department had the support of the Chamber of Commerce, of other business organizations, and of the citizens in general. The order has been in force for over a year, and is operating satisfactorily.

MARTIN O'BRIEN,
Chief of Police.

City Engineers

A Unique Memorial

Vineland, N. J.—This city has a Soldiers and Sailors Memorial Circle of which it may well be proud.

THE MEMORIAL CIRCLE

More than fifty-six years ago the founder, Charles K. Landis, laid out a plot of ground consisting of about forty acres, with roads leading through this plot north, south, east and west, and planned a circle of trees directly in the center of the intersection of the proposed park, which he later presented to the borough of Vineland. To this day the plot of ground is known as Landis Park.

It was this circle of trees that inspired the people most concerned in a memorial, and after clearing the center of the circular plot of all unnecessary weeds, and wild flowers, the following was the result:

Forty trees reaching to a height of more than fifty feet stand at equal distances in a perfect circle, which in diameter measures two hundred and eighty feet, a cement coping thirty inches high and one foot thick, just about three feet outside the circle of trees, extending around the entire plot. There are twenty-two memorial trees, blue Koster spruce and Douglas firs, alternating, which are set along the inner circular walk which is six hundred feet in circumference, each tree marked by a granite stone, eight feet directly in front, measuring 18 by 14 by 22 inches. A bronze tablet on the beveled top bears the name, age, service, date and place of death of each world war hero. The center flower bed is fifteen feet in diameter, making a beautiful sight when in full bloom. There are about five thousand feet of cement walks, and the dedicatory stone with a wonderful bronze tablet stands eight feet high and weighs eight tons.

The beauty of this park, which may only be appreciated by those fortunate enough to actually be on the grounds, is enhanced by the fact that this is an individual memorial, and a monument with a live growing tree just in the rear of each stone forming a complete circle of trees within a greater circle—a lasting mark of appreciation from the hearts of the Vineland people. The cost of the entire memorial was $5,000 and the finances were raised by the Diamond Social Club, a popular organization of young business and professional men.

CAPT. C. B. ODELL,
City Engineer.

City Planning Commissions

Planning for Decatur's Future

DECATUR, ILL.—Decatur's city plan was formally adopted in May, 1920. The next week the City Council awarded the contract for an impounding dam, which will cost, together with land damages and road and bridge changes, nearly $2,000,000.

The two projects will go along together. The impounding proposition had been foreseen, and the fact that the city was to have at its doors a lake six miles in length, considerably altering the landscape and the approaches to the city, was one of the compelling reasons for a comprehensive plan.

The Decatur Association of Commerce appointed a committee of 25 citizens to serve as a City Plan Commission, and one of its first acts, in April, 1919, was to engage the services of the American Park Builders, Chicago, which had been highly recommended by the Planning Commission of Rockford, Ill., where it had just completed a plan.

Decatur has a population of nearly 44,000 by the latest census and grows at the rate of 1,200 a year. Its layout is the conven-

IN VINELAND, N. J.

SITE OF THE PROPOSED DAM AND LAKE IN DECATUR, ILL.

tional gridiron pattern, which has been consistently followed since the city was founded. The plan does not recommend the abandonment of the rectangular street system in its provision for a city of 150,000 inhabitants, but urges that blocks should be 600 feet north-and-south and 300 feet in width, and that alleys in residential sections be eliminated. By substituting long blocks for short ones it is estimated that a saving of $16,864,000 can be effected on the 19 square miles plotted in the plan. The fact has been brought home to real estate men that it is better business to sell land for house lots than to dedicate it for streets, and property owners have been made to realize that short blocks are a wasteful luxury.

Diagonals superimposed upon the rectangular system and giving quick access to the business center from the outskirts are obtained by preserving present country roads and in one or two cases running roads along railroad right of ways.

Five and one-half square miles were plotted in curbed streets, where the topography called for them. Developers of additions in the hilly land and along the lake shores will be encouraged to make streets conform to topography, winding about hills, instead of cutting ruthlessly through in straight lines, which disregard scenic possibilities and cost of grading.

Railroads going through the city at grade in all directions have long constituted a menace to life, and in recent years have caused a heavy economic loss by reason of the halting of traffic. This was one of the most difficult problems for the city planner. It was met in part by the recommendation that two lines, which are bad offenders in blocking crossings, change their direction of approach to the city and come in over the road-bed of another railroad whose tracks can easily be raised for a distance of two miles through the city. Underpass crossings were recommended for other lines, the work to be done gradually. This represents the first comprehensive plan for dealing with the railroad, and it is hoped that the roads can be shown that it is for their advantage to make the changes.

Decatur has at present only 182 acres of parks. The plan recommends the acquirement of 2,500 acres in addition. The valley of Stevens Creek, which flows north of the city and skirts its western outskirts, was found to be admirably adapted for park purposes. A four-mile drive along the creek is urged.

The impounding reservoir, which will be six miles in length and from a fourth of a mile to a mile in width, will furnish another magnificent park reservation if the city acts upon the plan and borders each side with a drive. One of these drives in the plan will be carried along country roads to the north until it meets the Stevens Creek drive.

Illinois has a recent zoning law, upon which the Supreme Court has never passed. The plan strongly recommends that there be some effort to divide the city into industrial, commercial, residential and park zones to the end that there shall be no en-

croachments of industrial improvements upon residential, and vice versa.

A portion of the city already in use for industries the plan finds admirably adapted to the purpose, and it furnishes a scheme of switch tracks for the use of factories. Centralization of teaming yards, widening of main traffic streets, and a suggestion for a convenient street railway system to replace the present outgrown one, are other things outlined in the plan. A site for a civic center to contain the principal public buildings is recommended.

It is realized that in a state without a town planning act the carrying out of the plan depends largely upon public sentiment. The plan has been well received by the citizens, both in a mass meeting where it was explained, and at an exhibition in the Art Institute. A most gratifying indication is the voluntary announcement by the Plat Committee of the Board of Supervisors that it will not accept for record any plat that does not coincide with the plan.

W. F. HARDY,
Chairman, City Plan Commission.

Park Departments

A Popular Auto Camp

Sacramento, Calif.—This city maintains a tourist rest camp, under the management of its park board. The municipal auto camping ground is situated at McKinley Park, about 17 blocks from the business center. McKinley Park comprises 36 acres, practically all of which is improved, containing a children's playground fully equipped with all modern apparatus, baseball diamonds, soccer fields, tennis courts, open air dancing platform, wading pool, etc. A special part of the park has been set aside for the auto camp. Conveniences for tourists, such as electric lights, showers, sinks, Dutch ovens, and shelter houses containing combination table and benches, are provided. The camp is being maintained as a rest camp for tourists only.

Sacramento was among the first cities to establish auto camps, and additional improvements are made yearly as the popularity of the camp increases. Over 10,000 auto parties registered in 1919.

MRS. M. CARRAGHER,
Secretary, Park Board.

Departments of Education

High School and Municipal Building Combined

Bloomer, Wis.—On page 386 is reproduced the architect's sketch of the new High School and Municipal Building at Bloomer, Wis. The building is now under process of construction.

Bloomer is a thriving little factory and general business city, situated in a rich agricultural section of Chippewa County. The demand recently arose for a new city

THE AUTO TOURIST'S REST CAMP IN SACRAMENTO, CALIF.

NEW HIGH SCHOOL AND MUNICIPAL BUILDING, BLOOMER, WIS.

hall, and also a new high school. The idea of combining them both under the same roof, which at first thought seems perhaps absurd, has proved to be entirely practicable.

The building is 120 feet long by 100 feet wide, fire-proof throughout. In the basement of the building, 8 feet below the surface and extending 13 feet above grade, is a large community auditorium and gymnasium, equipped with a fine stage, shower baths, locker and dressing rooms. The room is admirably suited for both the above-mentioned purposes.

Because of the location of the building in the exact center of the city, this auditorium will have an ever-increasing usefulness in community life. A part of the sphere of usefulness which is being anticipated will be business and professional men's gymnasium classes, ladies' gymnasium classes, community movies, community sings, community lunches and banquets, as well as supervised play and the general athletic program of the high school. The domestic science rooms and kitchen open immediately off the balcony and are easily accessible to it and to the main floor of the auditorium. Another corner of the basement is occupied by the fire department of the city. This large room opens upon the alley, and its activities will be entirely separate from the remainder of the building. Turning to the first floor, we find one large corner room occupied by the city and school library. The librarian is hired by the school board, and she attends to community as well as school interests. The library is maintained by a library board which secures funds through various public benefits. At the rear of the library the city council rooms are located. The building is so arranged that the locking of two doors separates the municipal interests from the school interests, so that there can be no possible interruption. The remainder of the building is used exclusively for school purposes and is entirely modern in equipment. In the event that the building is ever needed for school purposes alone, the rooms now used by the city can be easily converted into school rooms.

The advantages of a building of this character are many. The one great advantage is a linking of school and community interests much more firmly than in any other way.

LYNN G. HASKIN,
Superintendent of Schools, Bloomer, Wis.

Cleaning a Road for Resurfacing

Experiment Using Compressed Air to Remove Dust from Road Before Resurfacing Proves Highly Successful

THE main driveway leading to Bear Mountain, a part of the Palisades Interstate Park on the Hudson River, New York, was resurfaced during the latter part of 1919 after removing the dust which might have prevented proper bonding of the surfacing and the roadway. This road was built in 1915 on a telford base over which was placed a layer of 1½-inch stone rolled to 2 inches in thickness. Standard Oil binder-B was used at the rate of one gallon per square yard on this layer, following which a second layer of stone of the same size and thickness was spread and rolled and a similar application of binder-B applied. A layer of stone one inch thick was spread on the second layer and thoroughly rolled in at once. The third application of binder-B at the rate of ¾-gallon per square yard was then made and covered with sufficient screenings so that the roller could easily work over it. The surface of this road had become worn down very evenly by the pleasure cars which use it at high speed, by motor trucks and steel-tired wagons and trailers which have been hauled over it with traction engines owned by the Palisades Interstate Park Commission in drawing wood and lumber from the wooded section. The ¾-inch stone showed over the entire surface and was worn.

For resurfacing, a portable air compressor having a capacity of 40 cubic feet and made by the Chris D. Schramm Company, Philadelphia, Pa., was purchased, and equipped with two hose having nozzles with ⅛-inch apertures. The roadway was first swept by hand and then all the dust was blown from the road surface by this compressed air outfit operated by three men. The outfit covered a half-mile a day and left the road clean as a ballroom floor. A hot seal coat of binder-B was then applied by sprinkling trucks, adhering perfectly.

THE COMPRESSED AIR OUTFIT THAT CLEANED THE PALISADES ROAD BEFORE RESURFACING

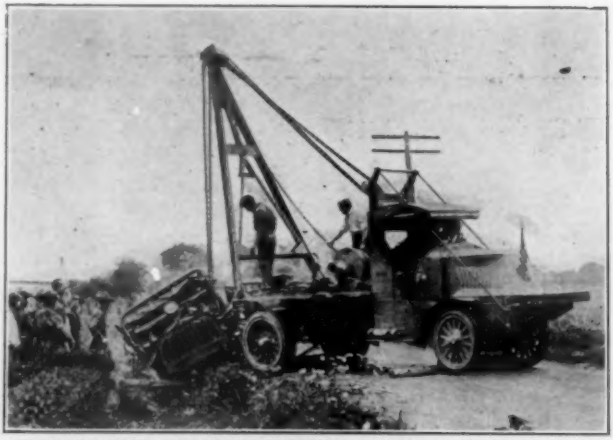
Immediately after the application of the seal coat, a ¼-inch covering of granite screenings was spread over the surface and rolled at once by a 10-ton roller. The binder for the top coat was applied at a temperature of 350 degrees at the rate of ½-gallon per square yard. In spite of the fact that the weather was very hot, the screenings were firmly imbedded in the binder and there was very little bleeding, even after the road was opened for traffic.

Careful examination shows no peeling of the blanket coat put on the roadway, and the whole experiment is a success.

Wrecking-Trucks for Fire Departments

Derrick Trucks Indispensable to Municipalities

THE numerous services which up-to-date fire departments are called upon to render require not only the standard fire department equipment but the apparatus of the rescue squad and other types of emergency equipment. One of the accompanying illustrations shows the emergency truck of the New York Fire Department, which carries complete apparatus for repairs and other work under the benches at the side and a heavy hoist overhead.



AN EMERGENCY TRUCK RESCUING A DAMAGED MOTOR TRUCK FROM THE DITCH

The Fire Department of Boston, Mass., has had a derrick wrecker mounted on a specially built Mack auto truck equipped with a 4-cylinder, 70-horse-power motor, This piece of apparatus has rendered particularly efficient service since it was installed in fire headquarters on Bristol Street about two years ago. The machine can make a speed of 40 to 45 miles an hour and is equipped with a power winch and derrick at the end, which is capable of lifting a weight of 10 tons. Among the ordinary uses to which the derrick can be put are towing in wrecked apparatus, delivering fuel and pulling down walls at fire ruins. It has also been frequently used to rescue horses that have fallen into holes or ditches. The wrecker can pick up a heavy automobile and swing it around as if it were a baby carriage. The machine has a record of several hundred accident cases and now averages almost a dozen calls a week.

AN EMERGENCY TRUCK OF THE NEW YORK FIRE DEPARTMENT

Among the specific instances of the usefulness of the Boston truck are the following: It was used to convey divers and their outfits from the Navy Yard at Charlestown to Fenway Pond, Back Bay District of Boston, the scene of a drowning accident, assisted by Ladder

15. This same machine removed a horse and cart that had fallen over an embankment and into the cellar of a building. The wrecker was used to rescue a horse that had gone through a barn floor on Blue Hill Avenue. It also responded to a fourth alarm from a box on Battery Wharf on the water-front and removed two fire department horses that had fallen into a trench. The wrecker responded to a call from Dorchester, where, assisted by members of Ladder 27, it removed a horse from a manhole, the horse being the property of the City of Boston Sanitary Service.

The above are a few of the outside jobs done by the wrecker and do not include the regular fire department emergency work, which are performed quietly, efficiently and without any special notice being made of it—it's all in the day's work for the wrecker. Boston was the first city to install this type of machine, and since it has been established it has been adopted in a number of other cities. The wrecker was designed by Charles W. Stewart, Supervisor of Motor Apparatus of the Boston Fire Department, and was built by the Mack Company. The wrecker is in reality a traveling repair and machine shop and responds to all third alarms. The motor squad is composed of six men, and three men are kept on night duty.

Borough of Manhattan (New York City) Completes Motorization of Fire Department

In 1910, when the first motor-driven apparatus was installed in Engine House 72, there were 1450 in the entire department. On August 25, 1920, the last five fire horses in service in the New York City Fire Department, Borough of Manhattan, were retired when Engine 47 and its tender were driven out of the station at West 113th Street and were replaced by a new 7-ton combination motor and hose wagon.

The 3-horse engine hitch was first driven out of the fire house, followed by the tender. The engine and tender hitches swung into a cross street with their entire crews. Then the crews jumped out and returned and ran out the new motor apparatus, the two drivers having qualified as fire department chauffeurs after a course at the departmental school for training motor drivers.

TESTING SIX MACK HIGH-PRESSURE HOSE WAGONS AND EIGHT AMERICAN-LA FRANCE 750-GALLON-PER-MINUTE PUMPING ENGINES FOR THE NEW YORK FIRE DEPARTMENT

All this apparatus was tested early in August and immediately accepted and placed in service by the Department

Mixing Devices for Applying Chemical Coagulants to Water

Novel Methods the Result of Recent Experiments at Milwaukee, Wis.

A FEATURE of rapid sand filter plant design which has sometimes received little or no attention, and at others improper treatment, is the manner in which the chemicals are applied to the water to be coagulated. It is believed that the correct method can be developed only when there is a proper understanding of the chemical reactions involved and of the physical phenomena which follow these reactions.

As all chemical reactions of the type utilized in coagulating water are extremely rapid, their velocity increasing with increasing temperature, it becomes a matter merely of bringing together as quickly as possible the reacting compounds. Since the volume of the chemical solution (or solid where dry feeding is used) is very small as compared with the volume of water to be treated, it is apparent that in practice it becomes a mechanical problem of bringing the reacting substances together.

The device which has been widely used to effect this mixing, more especially where softening the water is the object sought, is what is known as a mixing chamber. These chambers usually consist of a series of long, narrow channels sometimes baffled vertically, and sometimes not baffled, but practically depending upon the velocity and length of travel of the water to effect the mixing action.

Types of Mixing Devices

Four different types of experimental apparatus for mixing the coagulating chemical solutions and the raw water were installed in Milwaukee at the testing station. These devices produced rapid and thorough mixing and are believed to be more or less novel and departures from existing practice. That they are simpler and very much less expensive to construct is obvious.

Mixing channels or chamber.—A mixing chamber provided with baffles of "around the end" type occupied nearly the whole of one side of the building. It was 60 feet by 11 feet 9 inches in plan, and contained 22 channels. The channels were each 60 feet long and had a cross-sectional area of approximately 13 inches in depth by 5½ inches in width. The channels were arranged in steps with a total drop from the highest to the lowest channel of 2 feet and 5 inches.

Fish ladder.—In this apparatus a compact mixing device was produced by placing short "around the end" baffles in a narrow but rather tall vertical tank. The height of the tank was 7 feet and its dimensions in plan 1 foot by 3 feet. It contained 17 baffles placed 4 inches apart. The passing space around the end of the horizontal baffle was 4 inches by 1 foot in area. A distance of 6 feet existed between the level of the water entering the device and the usual level in the settling basin.

Fall.—A simple mixing device of another type designated as the "fall" consisted merely of a wooden box 4 feet in plan and 3 feet deep. Near the top and extending the whole width of one side was a receiving tray approximately 10 inches by 10 inches in cross-section. The water is discharged into this tray, together with the coagulant solution, and spilled over the side to an apron set at an angle of about 45 degrees which had two 1-inch high riffle strips extending across the whole width of the apron. The water fell from the apron on a pile of stones in order to still further agitate the flow.

Flume.—A further elaboration of the idea embodied in the "fall" was produced by the construction of a riffled flume. This mixing device consisted of a trough or flume 28 feet long, 2 feet wide and 1 foot deep. It contained thirteen riffles 6 inches high and set 2 feet apart throughout the length of the flume. The flume was set at an angle so that the water had a drop of about 4 feet.

Value of Different Types

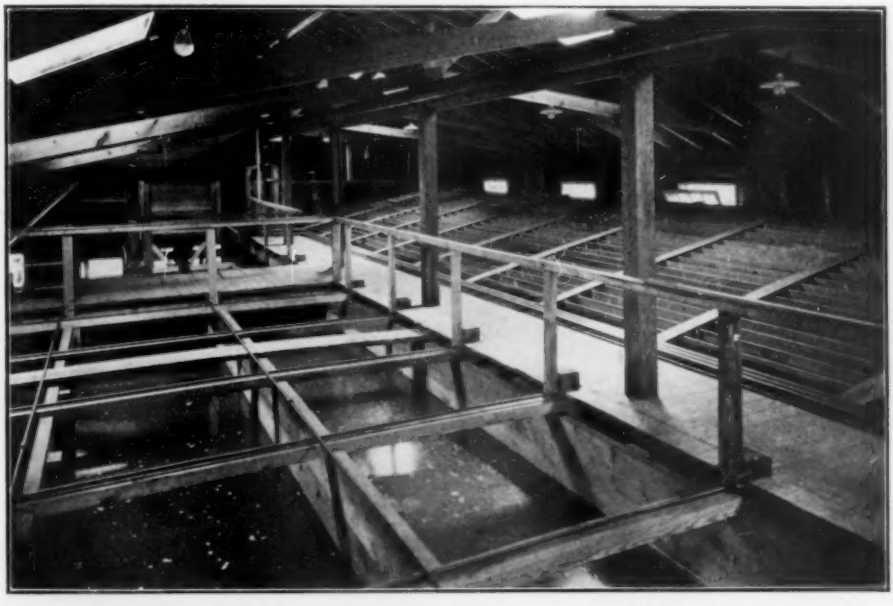
The poorest mixing action was obtained with the "fall"; some improvement was effected after changes were made in the manner of introducing the chemical solution, but on the whole its action was rather

unsatisfactory. Somewhat better results were obtained with the "fish ladder," but as this device is in reality an "around the end" baffled mixing chamber placed vertically, it offers no particular advantage except in taking up but little space.

It was observed when using the mixing chamber that prompt coagulation—which is, of course, an indication of the completeness of the mixing—took place in the first five or six channels, but that the size of the floc had decreased as the water passed through the lower channels. In some cases the flocculation did not make its appearance until seven or eight channels had been passed, reaching its best condition in the tenth and twelfth channels. The long travel, however, appeared unnecessary and even harmful in breaking up the floc.

In order to see whether reduction in the size of the flocculation particles was due merely to the velocity acquired in the straight channels, or was caused by the agitation of the water as it reversed its direction of flow at the ends of the channels, the latter were blocked about 18.9 feet from the end and new openings cut through the baffle walls. The same number of reversals of the direction of flow was obtained, but the length of travel in each channel was cut down from 60 feet to 18.9 feet. The results were as satisfactory as those previously obtained, but no more so, although nearly 70 per cent of the chamber had been cut out of service.

The "flume" as originally designed consisted of an inclined trough provided with weirs placed 2 feet apart. The water in flowing down the flume formed a series of cascades. An excellent mixing action was produced at a comparatively low velocity of flow. The loss of head, however, was too great. By cutting the "flume" into two parts and attaching the box known as the "fall," the loss of head was cut down about 25 per cent. The results obtained were good and were secured with a low rate of flow. The device takes up little room as compared with a mixing chamber.



INTERIOR OF MILWAUKEE WATER EXPERIMENT STATION, SHOWING MIXING DEVICES

In the last device an entirely new principle was utilized. By removing the weirs from the "flume," extending it slightly into the receiving box ("fall") and placing a low weir at the end, there was produced by the rapid flow of the water down the "flume" a "hydraulic jump." By the impact of the water flowing down the "flume" into the pool back of the weir, a turbulent

condition of the water was produced, which effectively mixed the chemical solutions and the water. The chemical solutions were applied at the head of the "flume." The water acquired a velocity of 9 feet a second in flowing down the "flume," but this velocity was practically all dissipated in complex eddies at the "jump." Considerable air is trapped in the "jump," and its escape contributes materially to the turbulent condition of the water and consequently improves the mixing action.

The results with this device have been very satisfactory, and the reason for it requires explanation. When a precipitate is the product of a chemical reaction, it first appears in a very finely divided condition. In the case of a colloidal precipitate such as ferric hydroxide or aluminum hydroxide (the two compounds utilized in water purification), the aggregation of these particles into larger masses is necessary, not only to entrap the fine sediment and minute bacteria in the water, but to prevent them from passing through the sand-bed of the filters. It is obvious that violent and continued agitation of the water will hinder rather than assist in the clotting together of these particles, and hence, to aid this coagulation a quiescent condition is necessary.

The "hydraulic jump" mixing device provides an extremely rapid and thorough mechanical mixing of the chemical solution and the water to be treated, thereby bringing the reacting substances together and hastening the reaction. Immediately following the "jump" the water flows quietly to a settling basin in which the physical action of coagulation can take place with the least possible amount of agitation, and thereby reduces to a minimum the breaking up of the floc during its formation.

The proper mixing of the chemicals with the water, and the chemical and physical conditions resulting, have been discussed in some detail because of its importance in the design of a plant. By the adoption of a simpler design a great deal of money may be saved in the construction costs.

Another factor in the problem of properly coagulating a water of as low average temperature as that of the Milwaukee water-supply, 43° F., has also been given considerable attention. The low temperatures undoubtedly do retard coagulation, and it has even been claimed that for this reason the water supplied to this city would not be properly prepared for filtration. While the floc formed in the coagulated water has at all times been quite small, it has never failed to produce the requisite thickness of colloidal mat on the surface of the sand of the filters.

So far as effective mixing and proper coagulation are concerned, the experiments have proved conclusively that devices can be designed which will effectively handle the water-supply of the city, and that their cost of construction will be much less than some of those now commonly employed.

Artificial Turbidity to Improve Coagulation

On account of the small amount of natural sediment in the lake water, and its low temperature, it was thought that it might be possible to improve coagulation by introducing an artificial turbidity. If the minute particles of a suspended solid formed points around which the colloidal matter could collect, then coagulation might be improved. In consequence, an aluminous clay was obtained which readily disintegrated in water and which was applied to the lake water as it entered the mixing device. The chemical was applied also at the same point in the usual manner. The average turbidity of the lake water was 3 p.p.m. By the addition of the clay the turbidity was raised to 21 p.p.m.

The results obtained were rather unsatisfactory. While it was found that with more suspended particles in the water a larger floc was produced, it did not appear that there was any improvement in the effluents from the filters. It was apparent that the filter sand-bed was being overloaded with clay and that it was not removed by washing, since the effluents of the filters were slightly turbid at the beginning of a run or just after washing. The 21 p.p.m. of turbidity produced had been brought down to 7 p.p.m. in the water applied to the filters, hence it could not be concluded that too great a volume of sediment was passing to the filters.

Another Side to the Billboard

By Tom Nokes

Director, Poster Advertising Association

IT is a common saying that there is some good in every person, and, anent the recent agitation against billboards, provoked by a number of well-meaning people, it might be said that a properly erected and well-placed poster or billboard structure may play a part in the improvement of the appearance of city streets by screening unsightly spots.

A poster board, or billboard, is not the most unsightly thing in the world by any means. In fact, they have even been referred to as "public art galleries." They carry the messages of manufacturers, merchants and others to the world in a most forceful manner.

"The outdoor advertising sign," says John Sullivan, Secretary of the Association of National Advertisers, an organization of over 300 manufacturers and others who spend over $250,000,000 a year in advertising to help in the economic distribution of their products, "is an article of commercial utility. Many objects of utility spoil the landscape. But their improvement, rather than their elimination, is sought, because the economic function of objects of utility is pretty well understood and appreciated. It is only because of a more or less general ignorance of the function of advertising in business that advertising signs are not generally regarded as objects of commercial utility."

Many manufacturers regard poster advertising as their most valuable medium. Their consistent use of it is the best proof of its effectiveness, for the national ad-

THE POSTER ADVERTISER PRESENTS THESE PICTURES FOR YOUR CONSIDERATION

A CITY LOT CLUTTERED WITH BUILDING MATERIAL

BILLBOARDS SCREEN THE SAME UNSIGHTLY LOT FROM VIEW

vertisers examine and record results very closely and accurately, and never continue to use an ineffectual form of advertising. Therefore there is not much to the claims often made that poster advertising about the thoroughfares of a city is always wasteful, ineffective, and in bad taste. The poster appeals to the masses and classes. People cannot ignore it. Its message burns into the mind.

There is a remarkable number of citizens in any community who will absolutely neglect the improvement of their properties, especially vacant lots. A lot can be covered with weeds, old lumber piles, débris of all kinds, and even old tumble-down buildings, but the city authorities cannot or do not exercise their powers to remedy the condition and appearance. How much better for the appearance of the street or property to have it bounded by a properly-erected and well-located poster structure. Recently in Emporia, Kan., the city authorities asked for the removal of a so-called billboard facing the city scales. Within a week the Mayor asked for the replacing of the board, "as it would help the looks of the entire block."

A mayor of Tallahassee, Fla., in speaking of the refusal of the municipal authorities of that city to join in an anti-billboard campaign, said: "I can readily understand that under some circumstances the billboards may become a nuisance and objectionable, just like many other things in this world. But, so long as the plant owner in Tallahassee pursues his past and present policy of making his boards attractive, and placing them at such places that they conceal unsightly scenes and thus contribute to the exterior beauty of our little city, I predict that it will take nothing short of another World War to change sentiment locally and start any agitation that might cause him embarrassment. He has made so many ugly places more beautiful with his neat boards that I am confident that a large majority of our people feel under obligation to him for this service."

Further, the billboard interests claim that they have as much legal right along city streets as garages, factories, and other structures. Therefore, because some one takes exception to a billboard for esthetic reasons alone, it does not necessarily follow that the billboard is outlawed. If there is anything in connection with the billboard that concerns the comfort, safety, health, morals and material welfare of the community, the police powers may be invoked by the municipal authorities. Nuisances and other wrongs are not committed behind a structure because that structure happens to be used for advertising purposes. The fact is that they are committed behind structures used for all purposes.

In passing on the validity of a St. Louis billboard ordinance the Court has stated that he did not believe that structures used for advertising purposes were responsible for nuisances and wrongs which might be committed behind them.

It is recognized that poster advertising boards should not intrude upon natural scenic beauty spots. Nor are they in good taste when placed in sections of a city devoted exclusively to high class residences. Public buildings, civic centers, schools, churches, parks and boulevards, constructed at great expense for civic beauty, educational and religious purposes, should be respected, and, as far as possible, posting structures should not be located so as to intrude themselves upon the surroundings of such places. Therefore municipal authorities and citizens in general can aid materially in bringing about improvements in billboard excesses, or cases where there is a question as to the judgment used in the locating of boards, if they will only bring such instances to the attention of the progressive men connected with the poster advertising interests in this country.

Editorial Note.—So much space has been given in The American City to material in opposition to the billboard that it is deemed only fair to allow the Poster Advertising Association to present its argument.

CONSTRUCTION PICTURES AND VIEW OF COMPLETED BRIDGE, CATOMA CREEK, MONTGOMERY COUNTY, ALA.

Reinforced Concrete Highway Bridge Replaces Wooden Trestle

The Longest Concrete Highway Bridge in the State of Alabama is in Montgomery County

By Maynard Farrow

Assistant County Engineer, Montgomery County, Ala.

THE Board of Revenue of Montgomery County, Alabama, is eliminating its many wooden bridges as rapidly as is practical and replacing them with more durable and lasting structures of concrete and steel. That every effort is being put forth in accordance with this program is evidenced by the fact that in addition to the regular concrete outfits maintained and operated by this county, state and government aid in accordance with the Federal Road Act has been enlisted in the construction of the more expensive structures.

Federal Aid Project No. 34, Montgomery County's first application for government aid, was the construction of a reinforced concrete bridge over Catoma Creek on the Norman Bridge Road, five miles south of the city of Montgomery, Alabama. The old wooden pile trestle with 16-foot roadway and 1,292 feet in length, which the concrete bridge now replaces, was most expensive to maintain with the heavy traffic which passed over it. It was strong enough to support a 10-ton road roller and its long span was made up of a light 90-foot steel Pratt high truss pin-connected span over the creek proper with 60 20-foot wooden pile bent panels as approaches. The south trestle approach carried a 10-degree curve with 50-foot tangent about midway between the end bent and the steel span. In the selection of the site for the new bridge, the projection of the centers of end bents of the old structure was used as center of new bridge, thereby eliminating the curve of the old bridge. By examination of the low flat black lands which form the drainage basin of Catoma Creek and observation of existing high water elevations, as a factor of safety at flood stage, the clear water way was increased 1 foot in height. This was accomplished by slow, easy approach grades to the main span and a 60-foot vertical curve at their intersection over the arch span. The geological formation of the foundation was found to be sand, clay and loam over tough blue marl, with the sand predominating at depths of 10 feet and over.

On the south approach where the nature of the sand was such as to seem uncertain the footings were pile-driven as an additional precaution.

Bids were invited from bridge contractors on one or all four alternate types of construction, viz: (1) spans cast in place on concrete piles; (2) spans cast in place on bents cast in place; (3) spans pre-cast on concrete piles, and (4) spans pre-cast on cast in place bents.

Six contractors submitted bids on the project; two of whom bid on two alternatives, 1 and 2; one on alternative 4; the

other two on alternative 2, only. Proposals ranged from $75,967.70 to $114,046.85. The lowest and best bid was on alternative 2 in amount of $75,967.70 submitted by J. A. Peterson of West Point, Indiana, to whom the contract was awarded. The entire cost of the bridge is borne jointly by the county, state and the Federal Government.

The plans call for a reinforced concrete girder bridge whose total length is 1,288 feet, and a clear roadway of 20 feet, paved with a 2-inch coat of bituminous concrete. The total length is made up as 51 22-foot panels; 2 21-foot panels and 2 32-foot panels joining the 60-foot arch span over the creek proper. The crown of the arch is 30 feet above mean low water level and has a 3-foot rise above the springing line.

The bridge is designed for a uniform live load of 80 pounds per square foot or a concentrated load of 2 15-ton trucks, allowing for impact of 30 per cent of the live load. The design is based on the following unit stresses: steel, tension 16,000 pounds per square inch, compression 15 times the concrete stress; concrete compression 650 pounds per square inch, shear 110 pounds per square inch for reinforced concrete. It is assumed that the steel will carry all tension.

Minimum penetration for piles is 15 feet. All reinforcement is steel deformed bars. Conforming specifications of A. S. T. M. for structural steel. No square twisted bars were used as reinforcement. All concrete in pier footings, pier shafts, and column bases and pedestals is of 1:2½:5 mix; all other parts of the structure are of 1:2:4 mix. All exposed edges are chamfered ¾-inch from each edge. For the railing ¾-inch stone is the maximum coarse aggregate; for all other parts of the superstructure 1½-inch stone is the maximum, with 2½-inch stone as the maximum for 1:2½:5 concrete.

The principal items shown in the contract are:

2,126 cubic yards of 1-2-4 concrete in superstructure;
215.93 cubic yards of 1-2½-5 concrete in footings and pedestals;
703.65 linear feet of columns;
2,862 square yards of bituminous concrete pavement;
60 cubic yards of slope walls;
351,000 pounds of steel deformed bars;
and as force account on basis of cost-plus-10 per cent, 1,600 linear feet of piles were driven in footings.

There is very little current probable so that the embankment at the end bents were rip-rapped with one-man stone not less than 3 inches thick nor containing more than 0.3 of a cubic foot in volume.

Work was commenced on July 7, 1919, and completed and accepted on July 24, 1920. The weather was favorable to construction with exception of the months of November, December and January. During these three months continued daily rains with delays in the delivery of materials tied the contractor up for more than half the time. Extreme freezing weather was of such short duration that no appreciable delay was caused by it. Shipments of materials on 200- to 300-mile haul by rail required weeks for delivery; such delays railroad authorities attributed to lack of transportation equipment. Labor though scarce could be had at $2 to $3 per day and even with the state of unrest, the work suffered no delays on account of shortage of labor.

State highway officials in accepting the bridge stated that it is the longest concrete highway bridge in Alabama. The Board of Revenue has by resolution proclaimed this bridge a memorial bridge dedicated in honor of those who made the supreme sacrifice in the great conflict for the sake of humanity. Suitable bronze tablets have been placed on the bridge carrying the honor roll of Montgomery County's fallen heroes and at an early date public dedication exercises are to be held for the purpose of unveiling the memorial tablets. The personnel connected with the construction of this bridge is: J. A. Peterson, Contractor; J. T. Bullen, District Engineer, U. S. Bureau of Public Roads; W. S. Keller, State Highway Engineer of Alabama; Thos. H. Edwards, County Engineer of Montgomery County, Alabama, and the writer as Assistant County Engineer.

Timber from insect- or fire-killed trees is just as good for any structural purpose as that from live trees of similar quality, providing the wood has not been subsequently injured by decay or insects. Market dead trees before they suffer injury.

—*New York State College of Forestry.*

The Summer School of Community Leadership

Distinctive Features of the 1920 Session Held at Madison, Wis., by the American City Bureau

THE 260 students enrolled this year for the sixth annual esssion of the Summer School of Community Leadership were recruited largely from the ranks of men and women who are putting to the test of practice the thought that the modern civic-commercial organization, based on the ideal of coöperative effort for the common good, is the logical agency to shape a community's advance. The students were secretaries of chambers of commerce and others interested in community leadership from every corner of the United States and from five Canadian provinces. There were also in attendance at the school 90 members of the American City Bureau's staff, making a total attendance, with speakers and guests, of about 400.

From a humble beginning six years ago in East Dorset, Vt., where there gathered hardly more than a dozen for its initial sessions, the school had grown this year to the dignity of an international institution. The American City Bureau was especially fortunate in being able to secure this year, through the courtesy of the Board of Regents of the University of Wisconsin, the facilities for an ideal summer school.

After months of preparation made necessary by the record-breaking attendance anticipated for this year's session, nearly a hundred members of the Bureau's field and office staff gathered at Madison on August 10. A week of conferences and attention to last-minute details preceded the opening of the school.

To cover in detail the sessions of the school would require at least one issue of this magazine. Every day there were speakers of national reputation presenting the study and thought of years on some phase of community development. City planning; the elusive elements that make up a city's personality; industrial development; health and sanitation; industrial unrest; the farmer problem; community markets; and the relation of a chamber of commerce to the city officials were but a few of the topics presented and discussed.

"We have succeeded in lengthening the average term of life for the human being," said Dr. George E. Vincent, President of the Rockefeller Foundation, "but we have much yet to do in prolonging the average individual's period of good health. We do not die, perhaps; but do we live?" Emphasizing that the health of the citizen is fundamental in the life of a city, Dr. Vincent pointed the way for chambers of commerce in coöperating with health authorities and uniting the activities of public and private agencies.

"Public health is more than a matter of curing existing evils," he continued. "It must deal with the control of environment. This has to do with such things as pure water-supply, pure milk-supply, proper housing, proper recreation for young and old, the control of contagious disease and other things. The mechanism must start with a full-time public health officer, a man competent for his task. He must have adequate assistance. The health activities must be centered in the general organization, well supported by funds, the officer vested with authority to exercise full supervision of the work."

The futility of seeking industrial development through ill-advised publicity campaigns was well explained by C. R. Hebble, Executive Secretary of the Cincinnati Chamber of Commerce, in his address to one of the forum meetings.

"I do not mean to discount the idea of industrial development," said Mr. Hebble, "but I want to urge the importance of making a community ready for such development before it is attempted. There should be no careless use of statistics, and the small community, particularly, should think twice before deciding upon an industrial campaign."

E. B. Hall, manager of the bond division of the Harris Trust and Savings Bank, of Chicago, who appeared with Mr. Hebble in the symposium on industrial development, described the manner in which investment bankers secure and distribute bonds, and

THE STUDENTS AND STAFF OF THE 1920

gave much interesting information on the financing of railroads.

"Giving financial backing to new enterprises is ticklish business," said Mr. Hall, "particularly on the part of the investment bankers with headquarters in other cities. When it comes to the financing of a new enterprise, I believe that local men should be approached. Chambers of commerce should always be wary of participating in the financing of such deals. I would particularly caution them against selling bonds."

One of the most notable expressions of opinion voiced during the session was contained in the message of welcome received by the school from Governor Emanuel L. Philipp, of Wisconsin. Governor Philipp definitely advocated the city manager form of government, and business administrations for municipalities.

The two leading candidates in the Presidential race wired messages to the school congratulating it on its scope and purpose. Governor Cox telegraphed his opinion that "organized efforts have brought remarkable achievement in the management of civic affairs" and "to this end nothing can be more helpful than interchange of ideas."

Senator Harding expressed his appreciation of the school's "most praiseworthy and laudable undertakings" and commented on the "forward-looking activities which have received the practical impetus revealed by the enthusiastic and record-breaking attendance."

The study group plan, which was begun at the 1919 session of the school, was brought to a state of very satisfactory development this year. Grouped in small classes, the students were brought into personal contact with all the members of the faculty.

The success of the study group plan rested largely in the completeness of the text-book series provided for the students. Manuals were prepared on eighteen important phases of civic-commercial organization work. They covered a large section of the teachable technique of chamber of commerce management, and were speedily recognized by the students as considerable additions to their working equipment for their jobs back home.

The subjects covered by the manuals were as follows:

Program of Work
Committee Organization
Committee Management
Members' Forum
Constitution and By-Laws
Newspaper Publicity
Forms
Filing
An Accounting System
Simplified Bookkeeping
Relation of the Secretary to the Board of Directors
Headquarters
Delinquent Members
Reports and Bulletins
Procedure in City Planning
Referenda
Allowable Expenditures
Community Advertising

In most cases the teacher of a particular subject was the one who had prepared the manual from which it was taught. Most of the students had read their manuals in ad-

SUMMER SCHOOL OF COMMUNITY LEADERSHIP

vance, and as a result the instructors were able to pass quickly from the elementary phases of their subjects to the more interesting presentation of experience and practice.

Optional study classes in subjects of special interest to the advanced students were a notable feature of this year's session. In addition to fourteen required study groups, each student was invited to enroll in any ten of the following courses:

Office Forms for Chambers of Commerce
Members' Forum
Filing Systems for Chambers of Commerce
Accounting Systems for Chambers of Commerce
Writing Effective Letters
Vocational Education
Service to, and by, Retailers
Traffic Bureaus
Conventions
Organized Leisure-Time Activities
Equalization of Assessments for Taxation
Promoting a New Hotel
Control of Stock-Selling Schemes
Methods of Procuring Passage of Laws and Ordinances
Municipal Budget Making
Charity Federations and Charities Endorsement
Municipal Milk Distribution
Work for Women Members
Park Development
Subject Matter in Public Speaking
The First Year of a New Chamber of Commerce
Special Problems of Canadian Secretaries
Highway Making and Maintenance
Junior Chamber of Commerce
Proportional Representation

In this year's class there were many students whose knowledge of their profession had been broadened by former sessions of the Summer School and by experience as civic-commercial organization secretaries. To these advanced students the optional courses were of particular value.

In spite of the intensive character of the school methods made necessary by the short term of the course, recreation was emphasized in the program for every day. Since all the students were housed within a stone's throw of Lake Mendota, they found exceptional facilities for aquatic sports. Canoes and bathing suits were much in evidence every afternoon and evening.

The recreational program also included competitive field sports.

The adoption of the Code of Ethics for the Chamber of Commerce Secretary (see following page) was followed by inspiring addresses by Champe S. Andrews, a manufacturer of Chattanooga, Tenn., on "Life Interpreted in Terms of Business," and Dr. Howard P. Whidden, President of Brandon College and a Member of Parliament from Manitoba, on "The Place of the United States and Canada in the Family of English-Speaking Nations."

The annual election of the Students' Association of the Summer School resulted as follows:

F. F. Eubank, Sandusky, Ohio, President.
Rawley W. Holcombe, Hutchinson, Kans., Vice-President.
C. W. Otto, Pontiac, Mich., Secretary and Treasurer.
Directors: the officers, and W. A. Searle, Camden, N. J.; H. A. Davidson, Erie, Pa.; Miss Grace A. Lay, Tampa, Fla.; W. R. Jackson, Harrisburg, Pa.

A CODE OF ETHICS
FOR THE
CHAMBER OF COMMERCE SECRETARY

Adopted by the students at the 1920 session of the Summer School of Community Leadership, conducted by the American City Bureau

Community Leadership is a Profession

I BELIEVE

That it offers an exceptional opportunity for constructive and substantial community service.

That as a member of this profession I should strive to improve my knowledge, widen my mental and spiritual horizon, and arrive at an understanding of the forces which move men to united action for the public weal.

That I should be at all times sincere, considerate, unprejudiced and fearless.

That my morals should be above reproach.

That I should apply myself to my work with a diligence and industry consistent with my physical and social efficiency.

That I should scrupulously administer the finances and affairs of my office in accordance with the best business practice.

That I should be honest and accurate in the dissemination of information regarding the community which I represent.

That I should hold in strictest confidence all information given in the same spirit.

That I should take no advantage for personal gain of private information received through the activities of the organization which I serve.

That a greater field for service rather than a higher salary should be the actuating motive in any future advancement in my profession.

That I should make no tender of my services to another community unless certain that the position desired is to be vacated.

That I should not accept a salary greater than commercial organization experience shows my organization is justified in paying.

That I should accept no renumeration for my services as a commercial organization executive apart from the regular salary for the position, except with the full approval of the Board of Directors.

That I should refrain from attempting to increase my salary by playing one organization against another.

That to make a change of position after only a few months of service or while in the midst of important incompleted activities is wrong in principle and detrimental to the profession.

That the ethics of my profession are best served by giving credit for accomplishments to the organization, rather than to the secretary.

That I should have the courage to admit my mistakes and thereon build for future success.

That I should so conduct myself and the affairs of my organization that others in the profession may find it wise and profitable to follow my example.

That I should be willing at all times, when requested, to assist my fellow secretaries in the solution of their problems and in securing a better understanding of the principles of the profession.

That my acceptance of a position as secretary should be founded upon implicit faith in my community, in my organization, in my profession and in myself.

That above all I should be loyal to my community and to my organization.

That I should exemplify the principles of unselfish community idealism and urge the responsibility and privilege of community service.

Modern Methods Mean the End of the Little Red Schoolhouse

THE question of better educational institutions in the country is coming more and more into public view. The alarming trend of enterprising young people from the country toward the cities, with its resulting harm to the entire country, is constantly under discussion, and solution after solution has been put forth—on paper. A practical correction of this problem must be found, and found quickly. Now the Government has taken a hand, and is working for the development of centralized educational institutions in the country, which will do much to make farm life more attractive to worth-while young people.

ONE OF A FLEET OF TRUCKS WHICH ARE USED TO CARRY RURAL SCHOOL CHILDREN TO AND FROM THE UNION HIGH SCHOOL OF ANAHEIM, CALIF.

California is noted for its fine roads, and this gave the key to the solution. A 1-ton Federal was purchased for the El Cajon School, with a special bus body. This body has one door, with seats arranged crosswise, and end seats which fold up to leave a passageway. Thirty-one passengers can be comfortably seated.

Naturally, the services of this truck are required but twice a day—to take the students to school and bring them home. It makes two trips, each 8 miles, traveling but 16 miles per day. As the school is open but five days, the average per week is 80 miles. Records show that this truck actually consumed but 5 quarts of gasoline per day, 6¼ gallons per week, making 12.7 miles per gallon.

The Anaheim Union School, which covers a somewhat larger territory, is operating a fleet of several trucks with much the same body construction.

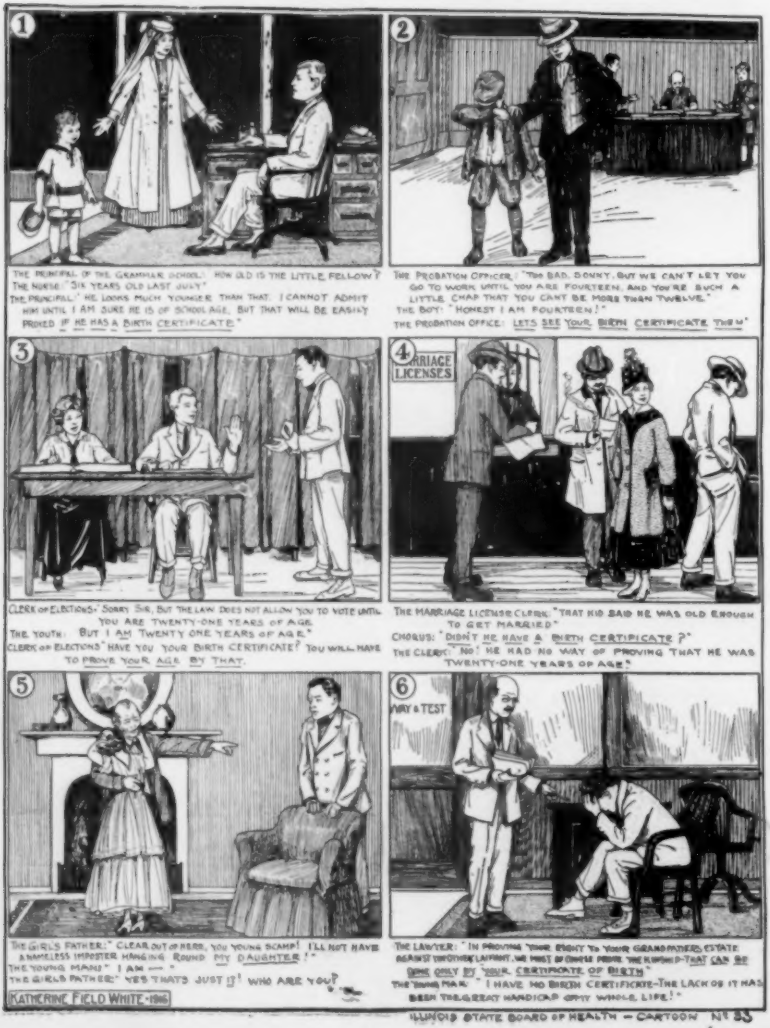
The same plan in various forms is in operation not only in many districts in California, but in widely scattered places throughout the United States. The plan varies in different localities. Some school boards are using adaptable truck bodies which do other work on contract during that part of the day when they are not occupied with their school trips and on Saturdays. Other lines are operated by farmers' coöperative trucking companies, which merely handle the transportation of the pupils at a fixed rate per pupil or per family, as a part

of their regular business. In still other places, the work is handled by some farmer who owns a truck and who increases his revenue and cuts the idle time of his equipment by taking to school the children of other farmers in his neighborhood at the same time that he takes his own, charging a small fare for each trip.

Wherever in operation, the plan produces not only the result of bringing higher educational facilities right to the farmer's front door, but another benefit which is not so obvious at first glance. Not only is the general health of the children improved by reason of escaping the evils of walking to school through all kinds of weather—and walks of three to four miles to country schools are not uncommon—but as a natural consequence the ability to get the most out of the lessons is increased. The children arrive at school fresh and free from fatigue, and naturally are in much better condition to concentrate on the duties which await them in the classroom.

The Child's Birthright—A Birth Certificate

Is Your City Protecting Its Children by Requiring Birth Registration?


1
THE PRINCIPAL OF THE GRAMMAR SCHOOL: "HOW OLD IS THE LITTLE FELLOW?"
THE NURSE: "SIX YEARS OLD LAST JULY"
THE PRINCIPAL: "HE LOOKS MUCH YOUNGER THAN THAT. I CANNOT ADMIT HIM UNTIL I AM SURE HE IS OF SCHOOL AGE. BUT THAT WILL BE EASILY PROVED IF HE HAS A BIRTH CERTIFICATE."
2
THE PROBATION OFFICER: "TOO BAD, SONNY, BUT WE CAN'T LET YOU GO TO WORK UNTIL YOU ARE FOURTEEN. AND YOU'RE SUCH A LITTLE CHAP THAT YOU CAN'T BE MORE THAN TWELVE."
THE BOY: "HONEST I AM FOURTEEN!"
THE PROBATION OFFICE: "LETS SEE YOUR BIRTH CERTIFICATE THEN"
3
CLERK OF ELECTIONS: "SORRY SIR, BUT THE LAW DOES NOT ALLOW YOU TO VOTE UNTIL YOU ARE TWENTY-ONE YEARS OF AGE."
THE YOUTH: "BUT I AM TWENTY ONE YEARS OF AGE."
CLERK OF ELECTIONS: "HAVE YOU YOUR BIRTH CERTIFICATE? YOU WILL HAVE TO PROVE YOUR AGE BY THAT."
4
MARRIAGE LICENSES
THE MARRIAGE LICENSOR CLERK: "THAT KID SAID HE WAS OLD ENOUGH TO GET MARRIED"
CHORUS: "DIDN'T HE HAVE A BIRTH CERTIFICATE?"
THE CLERK: "NO! HE HAD NO WAY OF PROVING THAT HE WAS TWENTY-ONE YEARS OF AGE."
5
THE GIRL'S FATHER: "CLEAR OUT OF HERE, YOU YOUNG SCAMP! I'LL NOT HAVE A NAMELESS IMPOSTER HANGING ROUND MY DAUGHTER!"
THE YOUNG MAN: "I AM — "
THE GIRL'S FATHER: "YES THAT'S JUST IT! WHO ARE YOU?"
KATHERINE FIELD WHITE-1916
6
WAY A TEST
THE LAWYER: "IN PROVING YOUR RIGHT TO YOUR GRANDFATHER'S ESTATE AGAINST YOUR UNCLE LAWRENT WE MUST OF COURSE PROVE THE RELATIONSHIP-THAT CAN BE DONE ONLY BY YOUR CERTIFICATE OF BIRTH"
THE YOUNG MAN: "I HAVE NO BIRTH CERTIFICATE-THE LACK OF IT HAS BEEN THE GREATEST HANDICAP OF MY WHOLE LIFE!"
ILLINOIS STATE BOARD OF HEALTH — CARTOON NO 35

A TREE-PLANTING CAMP ON TYPICAL WASTE MOUNTAIN LAND IN PENNSYLVANIA

Reforestation Progress in Pennsylvania

By Jacob L. Crane, Jr.

Of Gannett, Seeley & Fleming, Engineers, Harrisburg, Pa.

IN addition to their great esthetic and commercial value, forests are of critical importance to the full development of certain engineering projects, particularly those for water-supply and water-power. By the regulation of air movement and temperature, forests increase precipitation over timbered areas; both by keeping frost out of the ground and by the formation of a soft mulch on the ground surface, they help materially and sometimes tremendously to store water, to delay run-off, to make the water yield more regular, and to prevent both floods and droughts; they use less water than crops or grass; and they have an important effect on the production of clear instead of muddy water, and thereby incidentally help to prevent the silting of canals and reservoirs.

But usually it is only after the forests have been cut or burned off and the land left bare, that the value of the growing trees is realized. Reforestation can then take place in two ways. First, if they are protected against fire and against competitive growths, volunteer forests may develop. Second, by planting trees and cultivating and protecting them while they grow, artificial forests may be produced. Because of the advantage in being able to grow selected species, to control spacing and to some extent the actual development of trees, this second method has come to be used for most important forest cover projects.

Remarkable progress has been made in this second method of reforestation in Pennsylvania in the last ten or fifteen years, and the growth of the movement promises the development of vast forests over many thousands of acres of unused land. Though much is still to be learned, the business is largely beyond the experimental stage and on a well-established footing of success. State forests now have planted trees 25 feet high and thriving. As a measure of success, it is significant that on the reforestation projects under state supervision, 90 per cent of all conifers planted survive and develop. Scientifically conducted experiments are filling in the deficiencies in the technique of reforestation.

Up to this time a total of about 50,000,000 trees have been planted on 33,000 acres of Pennsylvania land. Of these about 34,000,000 trees are growing on 22,000 acres of state forests, and the remaining 16,000,000 trees are on private projects, 11,000 acres in total area.

Protection of Watershed Areas

Water-supply interest centers in reforestation for the specific purpose of protecting or developing active watersheds—planting on watershed areas. Municipalities have

planted 750,000 trees, a large part of these being on active watersheds, and water companies, which plant almost entirely on watersheds, have set out a total of 2,100,000 trees. The phenomenal growth of the business among water companies is shown by the fact that in 1915, 1,150 trees were planted, while in 1919, in the face of advanced costs, nearly 600,000 trees were set out, including those planted by municipalities and water companies, a total of about 1,500 acres of active watershed areas have been reforested by "private" planters, while 5,500 acres of the large state forest projects lie in actively used watersheds. This seems but a small start on the large acreage of reserved drainage areas in Pennsylvania, but the advertising value of the successful projects can scarcely be estimated. Data furnished by water companies now classed as successful planters—and this includes practically all those who have started plantations—are conclusive as to the complete success of the business, and the rapidly accelerating growth of the movement is due largely to the advertising promotional effect of these results.

In considering watershed reforestation it should be remembered that all reforestation is necessarily on land which contributes runoff to some stream—watershed land in the larger sense—and is therefore related to more or less remote water-supply problems in every case. The effect of reforestation in Pennsylvania is sure to be felt eventually on streams originating in Pennsylvania and passing through surrounding territory.

The growth of reforestation in Pennsylvania, particularly among water companies and municipalities, has been promoted very largely by the present plan for state cooperation. From 1910 to 1915, the state furnished trees to planters at actual cost, a figure much lower than the commercial nurserymen's prices. This, coupled with publicity and the beginning of popular interest in conservation, gave the start to sizable private planting enterprise. Beginning with 1915, the state coöperative plan as now administered was organized. Under this plan seedlings and transplants are furnished for the bare cost of packing and shipping to the consumer. This is only from 50 cents to one dollar per thousand seedlings, a fraction only of the cost from commercial nurseries. In addition, the State Forestry Commission, with its staff of experts, supplies free service in all phases of planting projects—selection of land, selection of species to plant, organization and technique of planting, and the maintenance of plantations. In 1919, 791 private planters set out over 3,000,000 trees. Up to this time nearly nine-tenths of all the trees planted by private enterprises have been furnished under the state coöperative plan.

It is worthy of note that the people of the state as a whole, in paying the margin between the cost of producing trees and the cost at which they are distributed by the cooperative plan, will expend in 1920, for perhaps 4,000,000 trees, only about $8,000, or less than one mill per capita, while the potential value to the commonwealth of the resulting forests is enormous. At the same time, about eight-tenths of all the reforestation remains state property.

State Coöperation Approved by Commercial Nurserymen

To prevent the coöperative plan from hurting the commercial nurserymen's business, a rule is established that not less than 500 trees can be ordered and planted under the coöperative plan. The nurserymen's orders are ordinarily for smaller lots, for decorative and landscape work, and this business is stimulated by the state forestry work in all its branches. The commercial nurserymen therefore, instead of opposing the movement, find that it is developing their business, and mutual assistance between them and the state is the fortunate result.

The demand for trees under the coöperative plan is outgrowing the facilities for growing and supplying them. This is chiefly due to the shortage of seed supply. In fact, in recent years the planters have not been able to get all the trees desired of particularly favored species. Therefore the number of the various kinds planted recently is perhaps more a matter of necessity than of selection. The state is able to anticipate the demand with fair accuracy, however, and more and more to provide for it. In this connection it is strange, and perhaps significant of the former lethargy exhibited toward reforestation in this country, that the popular and extremely valuable white pine, which was native in this country only and transplanted to Germany following our Revolutionary War, is now produced here

by seeds often procured from the varying and limited German supply.

Excellent volumes have been written on the technique of planting and maintaining forests. It is a highly complex and fascinating art. Fortunately, the aid of the State Forestry Departments makes success fairly certain and failure rare. Results may be predicted with fair accuracy, and the economics and monetary productiveness tabulated before a project is undertaken.

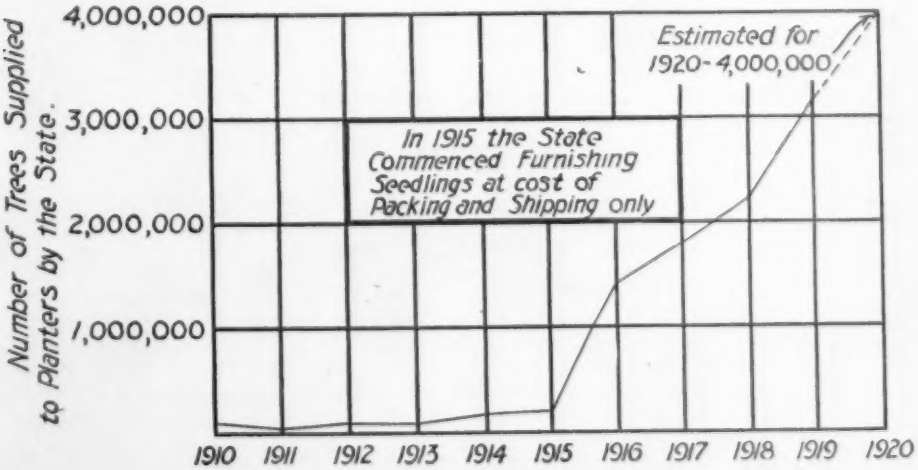
In Pennsylvania, spring planting is most successful, the season extending usually from about March 15 to the end of April, but varying from year to year and in different sections of the state. Fall planting, however, has not been unsuccessful, showing under proper conditions only 10 per cent lower results than spring planting, and it has certain advantages for some trees. The fall season extends usually from about October first to November fifteenth.

One of the most difficult problems is to protect young plantings from the competition of inferior wild growths. During the first couple of years, competitive growth of wild stock protects and aids the sound development of certain seedlings, but as soon as the plants grow to a competitive size, the competition retards and injures them. It then seems to be necessary to cut out the inferior growth to allow the plantation to develop successfully.

Forest Scourges

With a forest successfully started, the greatest dangers are from disease and fire. The "white pine blister rust" has been one of the greatest handicaps to white pine planting in other states, but in Pennsylvania it is happily under complete control, so that to-day there is probably not a single infection of the "rust" in the state. It is an infantile disease usually attacking and killing trees under ten years old, and can be eliminated only by cutting and burning the infected trees and the other hosts, currant and gooseberry bushes. The white pine weevil has not been eradicated, but it is much less dangerous. It attacks the tops of young trees, and when these tops are cut off the tree develops growth through a side shoot which becomes the main stem and at last shows but little mark of the weevil's work.

The greatest scourge of the forests is fire. Forest fires do far more damage than all the diseases and natural causes for depletion put together. The state gives aid and even pays the cost of putting out fires, in the way of publicity to assist in forest fire prevention, and maintains fire wardens. Organized patrolling by the private or municipal forest owners is succeeding very well. Private forest protective associations have been formed which provide coöperative fire protection at a cost of about two cents per acre per year. In the last twenty years, on the 22,000 acres of state plantations, only one-sixth of one per cent of the total area has been burnt over. This represents an annual loss of 0.03 per cent. Disease-prevention and fire-protection methods are more than keeping pace with the growth of the



forest movement, so that chance of loss is steadily decreasing.

One of the interesting features of forest culture is the self-renewal method of operation, by which only a small part is carefully cut each year or so, at a substantial profit over all costs, and the cut areas allowed to seed and reproduce voluntarily from the surrounding wooded tract. Forests of long standing in Europe are operated in this way very successfully and with great satisfaction to the owners and communities. This will probably be the future method of forest production in this country; in fact, it is already established in some forest projects.

The economics of reforestation is of primary interest, but cannot as yet be subjected to exact analysis. Several items are, however, fairly well established.

COST ELEMENTS OF REFORESTATION

	Per M	Per Acre
Seedings from state.....	$ .20-$ 1.00	$ .30-$ 1.50
Planting at present prices.	6.00- 10.00	9.00- 15.00
Total, including contingencies	$7.00-$12.00	$10.00-$18.00

On the state forests during the years 1916, 1917 and 1918 the various elements in planting costs made up the following percentages of the total cost of planting, exclusive of land:

Cost of seedlings	28.72
Cost of transportation	3.63
Cost of camping	14.94
Cost of soil preparation	.94
Cost of planting labor	43.46
Cost of foresters' time	5.20
Cost of rangers' time	2.93
Miscellaneous cost	.18
Total	100.00

In the face of advancing prices, the cost of planting on state forests decreased from $10.77 per acre in 1906 to $4.60 in 1916. War prices have advanced the cost again, but not to the earlier level.

There are available in Pennsylvania at least 3,000,000 acres of land suitable for reforestation. At an average of 1,500 trees per acre, this will support over four billion trees. The monetary value can only be guessed. The result in beauty, satisfaction and improvement to watershed lands and their yield is incalculable, but sufficiently evident to insure the progress of the movement. To the water-works engineer, whose business is the production of more and better water, reforestation as it is being developed holds a certain inspiration.

TABLE 1.—SHOWING VARIOUS SPECIES OF TREES PLANTED IN PENNSYLVANIA IN PERCENTAGE OF TOTAL OF ALL SPECIES

Species	Percentages of Total Number of Trees Planted: All Plantations	State Forest Plantations	Private Plantations, Water Companies, Municipalities, etc.
White pine.....	58.0	61.0	46.0
Norway spruce..	15.0	14.0	17.0
Scotch pine.....	9.0	9.0	10.0
Pitch pine.....	5.0	5.0	4.0
Red pine.....	4.0	3.0	7.0
European larch.	3.0	2.0	6.0
Jack pine.....	1.0	1.1	2.0
Other conifers..	1.0	1.1	1.4
Total conifers.	96.0	96.2	93.4
Red oak.....	1.0	1.2	0.4
White ash.....	1.2	1.1	1.8
Honey locust....	0.3	0.3	0.6
Sugar maple....	0.3	0.3	0.6
Black walnut...	0.15	0.2	0.1
Black cherry....	0.15	0.2	0.1
American elm...	0.15	0.2	....
Misc. hardwoods.	0.15	0.2	0.1
Total hardw'ds	3.4	3.7	3.7
Willows & privet	0.6	0.1	2.9
	100.00	100.00	100.00

ACKNOWLEDGMENT.—The author is indebted to Professor J. S. Illick, of the Pennsylvania State Forest Academy, for data and pictures furnished for this article.

A Competition—Suggestions for the Use of an Abandoned Cemetery

The Cleveland City Plan Commission offers a cash prize of $500 for the best suggested use of an abandoned cemetery in its down-town section. The successful competitor, in addition to the cash prize, will receive adequate and permanent recognition in the form of a tablet, or otherwise, if his ideas are embodied in the improvement. No one competitor may submit more than three suggestions, and these must be presented by November 1, 1920. Those desiring to take part may secure plans and full information by applying to the office of the Executive Secretary, City Plan Commission, 435 City Hall, Cleveland, Ohio.

Sanitary Standards for Swimming Pools

By Arthur M. Buswell, M.A., Ph. D.

THE question of sanitary standards for swimming pools is by no means a simple one. At first thought it would seem reasonable to expect that a bacteriological standard might be set for swimming pools, as has been done in the case of drinking water. The United States Public Health Service, for example, classifies all water with a count on agar at 37°C of over 100 bacteria per cubic centimeter, or showing b. coli in more than one out of five 10-cubic-centimeter portions, as non-potable. In choosing such a standard the public health service had the advantage of thousands of standard analyses extending over many years and including samples of waters which experience as well as analysis had definitely classified as either potable or non-potable, to guide them in their decision.

The bacteriological data on swimming pools, however, has been collected under such varying conditions and reported in such a variety of ways that an attempt to correlate the published results simply leads from confusion to chaos.

The inconsistencies in sampling are perhaps the greatest stumbling block. Many authors ignore entirely the importance of obtaining a fair or average sample for analysis, and others state vaguely or neglect to state how their "average" samples were obtained.

Taking the Samples

There are two important points to be borne in mind when taking a sample of swimming pool water for bacteriological analysis if a true idea of the condition of the pool is desired. The first is the time at which the sample is taken. To obtain the true sanitary index of a swimming pool, it is necessary when making tests of this kind to take samples every two to three hours during the time the pool is in use. A pool treated or untreated may change its bacterial content over night, either becoming purified because of the effect of settling, or more polluted on account of bacterial growths.

The second important consideration in sampling swimming pools is the point at which the samples are taken. Samples taken near the inlet will differ from those taken at the outlet, and the top is likely to differ from the bottom. The precautions usually prescribed in sampling drinking water, such as shaking to break up clumps of bacteria, etc., must of course be carefully observed as well. Strange as it may seem, many investigators have ignored entirely these points in sampling and have obtained results which have been misleading to themselves as well as to others.

It appears, then, that there are not as yet sufficient reliable data available to justify an arbitrary bacteriological standard for swimming pools. The authors who have suggested standards seem to be divided into two classes: first, the conservatives who say that a water that is good enough to drink is surely good enough to swim in, therefore swimming pool water should conform to the bacteriological standards for drinking water; second, those inclined to take a rather more liberal and rational view.

The use of index numbers, such as the "bathing load" factor, seems to offer a natural means of judging the probability of pollution. Gage* suggested dividing the number of bathers per week by the capacity of the pool in thousands of gallons. This number, which is directly proportional to the probability of pollution, he calls the "weekly bathing load." Unfortunately, the information required for calculating the bathing load and correlating it with the bacterial observations has not as a rule been given by previous authors, so that time will be required to develop the full usefulness of such index numbers.

Too often investigators have been led by enthusiasm over a series of good results on their own pool to make broad general recommendations on swimming pool sanitation. Those who have had experience with a large number of pools have been forced to the conclusion that "the sanitary control of each swimming pool is an individual problem." Swimming pool directors should be warned against relying upon a given method of sanitary control simply because it "works well somewhere else." The

* *Journal of the Boston Society of Civil Engineers*, Vol. 5, No. 6, page 229 (June, 1918).

method may not be at all applicable to the pool in question.

Although, in the light of the foregoing discussion, it may seem a presumption on our part, we shall venture in conclusion to suggest a standard method of sampling and a tentative sanitary standard for swimming pools. We claim no originality for these standards, but present them as representing, in our opinion, a summary of present views on the subject.

Sampling Procedure

The swimming pool water should be kept at a uniform temperature not exceeding 74° Fahrenheit.

The sample for the determination of the bacterial count of a swimming pool should be a composite sample made up of fifteen 10-cc. samples each of which should be taken from approximately the center of the sections made by dividing the pool surface into fifteen equal parts. The sample from each section should be collected at approximately mid-depth of the section. A 200-cc. bottle should be used for the collection of the 10-cc. samples. The composite sample must be thoroughly shaken before plating.

For a periodic test to determine if the condition of the pool comes within the standard, the sample should be collected immediately after the use of the pool by the average number of daily bathers, and before any treatment, disinfection, or sterilization of the water is made other than that in use during the bathing period.

For testing the efficiency of any method of swimming pool operation for the purpose of determining its efficiency in maintaining a pool within the permissible standard, there should be made a test covering a period of six consecutive days during a time of normal use, with composite samples being collected twice daily. The first composite sample should be collected before use of the pool by bathers. The second sample should be collected from the pool after use, the same precaution being made for collection of the second sample as observed in collecting sample for periodic test.

Sanitary Standard

For the above, it is suggested that the total number of bacteria developing on standard agar plates incubated at 24 hours at 37°C should not exceed 1,000 per cc. Not more than one out of five 10-cc. portions of any sample examined should show the presence of organisms of the b. coli group, when tested in accordance with procedure recommended in reprint No. 232 of the United States Public Health Service reports. The methods and media should be in accordance with the latest approved standard methods of water analysis of the American Public Health Association.

On the Calendar of Conventions

OCTOBER 10-15.—ST. LOUIS, MO.
American Society for Municipal Improvements. Annual convention. Secretary, Charles Carroll Brown, 404 Lincoln Avenue, Valparaiso, Ind.

OCTOBER 11-13.—ST. LOUIS, MO.
American Child Hygiene Association. Annual meeting. Executive Secretary, Miss Gertrude B. Knipp, 1211 Cathedral Street, Baltimore, Md.

OCTOBER 13-14.—BOSTON, MASS.
Massachusetts Chamber of Commerce. Annual meeting. Secretary, Edward G. Stacy, 6 Beacon Street, Boston, Mass.

OCTOBER 13-15.—AMHERST, MASS.
American Civic Association. Annual convention. Secretary, E. E. Marshall, Union Trust Building, Washington, D. C.

OCTOBER 14-19.—COLUMBUS, OHIO.
American Prison Association. Annual congress. General Secretary, Joseph P. Byers, Frankfort, Ky.

OCTOBER 16-19.—SPRINGFIELD, MASS.
American Country Life Association. Annual conference. President, Kenyon L. Butterfield, Amherst, Mass.

OCTOBER 19-22.—NEW ORLEANS, LA.
International Association of Municipal Electricians. Annual convention. Secretary, Clarence R. George, Houston, Tex.

OCTOBER 25-27.—CHICAGO, ILL.
National Association of Commercial Organization Secretaries. Annual convention. Secretary, F. D. E. Babcock, Chamber of Commerce, Worcester, Mass.

NOVEMBER 8-12.—CHICO, CALIF.
League of California Municipalities. Annual convention. Executive Secretary, W. J. Locke, Pacific Building, San Francisco, Calif.

NOVEMBER 15-17.—CINCINNATI, OHIO.
City Managers' Association. Annual convention. Executive Secretary, Harrison G. Otis, 1812 Tribune Building, New York City.

NOVEMBER 16-18.—LOS ANGELES, CALIF.
Fire Marshals' Association of North America. Annual convention. Secretary, George H. Nettleton, St. Paul, Minn.

Fire House Paved with Repressed Brick, Using Asphalt Filler

By Allen D. Dimmick

ONE of the ramifications of street paving presenting certain problems of its own is the selection and construction of suitable pavement for such buildings as fire stations. Although they are not subjected to what nowadays is considered heavy traffic, or to the same extremes of climatic temperature as outside street pavements, fire station pavements have to support heavy and concentrated standing loads and must be kept in a condition of scrupulous repair and cleanliness.

The Central Fire Station of Galesburg, Ill., was paved by J. B. McAuley, contractor, of Galesburg, Ill., in November, 1913, as described below:

On a five-inch concrete base, very carefully surfaced, was placed a 1½-inch sand cushion, which was moistened and rolled with a hand roller. Repressed blocks were laid carefully on edge in straight rows, face edge up, and then well rolled with a five-ton tandem steam roller.

Texaco asphalt filler was then poured from pouring cans, care being taken to fill all joints and interstices. After this a light, dry sand dressing was immediately applied to the surface of the pavement and soon after the surplus sand was removed.

The illustration, photographed in May, 1920, shows the condition of the fire station floor after nearly seven years' service. It is noticeable that the interstices of the brick are still filled flush with the asphalt, which has prevented any chipping or spalling of the brick and kept the whole floor waterproof and sanitary. This fact, as well as the skill and care exercised in the construction, is probably the cause of the satisfaction rendered by the floor. The elastic filler in the brick has resulted also in singularly little noise or vibration being produced by the passage of the heavy fire trucks.

FLOOR OF FIRE HOUSE IN GALESBURG, ILL., PAVED WITH BRICK, USING A BITUMINOUS FILLER

FIRE PROTECTION IS PURCHASABLE.
IT REQUIRES ONLY TRAINED MEN,
DEPENDABLE EQUIPMENT AND
ADEQUATE PUBLIC SUPPORT.

Size and Weight Restrictions in State Motor Vehicle Laws in Effect July 1, 1920

State	Size Restrictions	Weight Restrictions	Restriction in Number of Trailers	Special Permits
NOTE: In the following tabulations crosses (X) indicate that there are no state laws dealing with the subject. This does not mean, however, that counties, towns and other political subdivisions of the state concerned are also without restrictions upon the size and weight of the motor vehicles which may operate upon the highways within their jurisdictions. In many cases the charters of such political subdivisions or general state laws grant local governing bodies the power to enact ordinances of such a character. As a general rule, however, local ordinances contrary to the provisions of the state laws are forbidden or are unenforceable. In the weight restrictions column the per inch width of tire limits fixed by the States of Illinois, Iowa, Kentucky and Vermont are based upon the measurement of the contact of the tire with the road; in the case of Ohio and Virginia the distance between the flanges of the rim is the basis of measurement; in the other instances no specific basis other than "per inch of tire width" is prescribed.				
Alabama	X	X	X	X
Arizona	X	X	X	X
Arkansas	X	X	X	X
California	Outside width of tread 112 in.; outside width of bed of vehicle and load 102 in.	30,000 lbs. gross weight for vehicle equipped with 4 wheels; 40,000 lbs. for one equipped with 6 wheels having its 3 axles at least 96 in. apart. On other than metal tires weight must be distributed not more than 800 lbs. per inch of tire width; on metal 600 lbs. State Department of Engineering may reduce these limits in case of bridges, viaducts, etc.	Two	On application in writing State Department of Engineering may grant permits to operate heavier or wider loads, or more than 2 trailers or increase the permissable weights per inch of tire width.
Colorado	X	X	X	X
Connecticut	Over-all width limited to 114 in.	25,000 lbs. gross weight distributed not more than 700 lbs. per inch of tire width for non-metal tires; metal tires 500 lbs. State Highway Commissioner may restrict use of commercial motor vehicles of over four tons capacity on trunk lines or State aid highways.	X	On application in writing State Highway Commissioner or other authority having charge of the repair or maintenance of any highway or bridge may grant permits, allowing operation of vehicles of more than restricted weight.
Delaware	Width of vehicle limited to 96 in.; height to 146 in.	26,000 lbs. gross weight distributed not more than 700 lbs. per inch of tire width. Gross load of metal-tired trailers limited to 6,000 lbs.	X	State Highway Department may issue special permit to operate vehicle exceeding weight limits.
Florida	X	X	X	X
Georgia	X	X	X	X
Idaho	X	X	X	X
Illinois	Width of vehicle and its load limited to 96 in. Combination of vehicle and trailers shall not exceed 65 ft.	16,000 lbs. gross weight limit for one axle distributed not more than 800 lbs. per inch width of tire.	X	Highway officials may grant permission for operation of vehicles heavier than restricted weight or for trailer trains longer than 65 feet.
Indiana	X	20,000 lbs. capacity	X	X
Iowa	Width of vehicle and load limited to 96 in.	28,000 lbs. gross weight for vehicle and load; 8,000 lbs. for any one wheel distributed not more than 800 lbs. per inch width of tire on hard surfaced highways and 400 lbs. for earth, gravel or similar surfaces.	X	X
Kansas	X	X	X	X
Kentucky	X	30,000 lbs gross weight distributed not more than 800 lbs. per inch width of tire for non-metal tires; 500 lbs. for metal tires.	X	X
Louisiana	X	X	X	X
Maine	X	18,000 lbs. distributed not more than 800 lbs. per inch width of tire.	X	Highway officials may permit operation of vehicles heavier than restricted weights over highways under their control.
Maryland	Width of vehicle 90 in.	20,000 lbs. gross weight distributed not more than 650 lbs. per inch width of tire. Vehicles with rated carrying capacity of more than 10,000 lbs. not registrable.	X	Highway officials may grant permission to operate vehicles heavier than restricted weights on highways subject to their control.
Massachusetts	Outside width 96 in.; over-all length of single vehicle 35 ft.; over-all length of combination of vehicles 65 ft.	28,000 lbs gross weight distributed not more than 800 lbs. per inch width of tire.	X	Highway officials may grant permission to operate heavier or bigger units over the highways under their jurisdictions.
Michigan	Gauge of motor trucks an trailers limited to 75 in measured from center o tire to center of tire Over-all width 96 in. over-all height 12 ft. 6 in. Aggregate length of combination of vehicle 60 ft.	700 lbs. maximum load for tire 2 in wide up to 2,200 lbs. for 7 in. tire on wheel of 32 in. in diameter. These maximums are greater for wheels of larger diameter, those for 44 in. wheels being one and six-tenths larger.	Two	X
Minnesota	X	X	X	X
Mississippi	X	X	X	X
Missouri	X	X	X	X

State	Size Restrictions	Weight Restrictions	Restriction in Number of Trailers	Special Permits
Montana	X	X	X	X
Nebraska	X	X	X	X
Nevada	X	X	X	X
New Hampshire	X	X	X	X
New Jersey	Length 36 ft. 6 in.; width 92 in.; height 12 ft. 6 in.	30,000 lbs. gross weight distributed not more than 800 lbs. per inch width of tire	One	Highway officials may issue permits for operation of restricted vehicles over highways under their jurisdiction.
New Mexico	X	Rim or tire must be 3 inches or more wide if intended carrying capacity exceeds 2,000 lbs.	X	X
New York	Over-all width 96 in.; height 12 ft. 6 in. (Outside of cities.)	25,000 lbs. gross weight distributed not more than 800 lbs. per inch width of tire. (Outside of cities.)	X	X
No. Carolina	X	11,000 lbs. capacity	X	X
No. Dakota	X	X	X	X
Ohio	X	Tires of rubber or other similar substances 800 lbs. per inch of width on all tires; tires of iron or steel 500 lbs. per inch up to and including 12 inches of total width; 800 lbs. per inch over 12 inches.	X	X
Oklahoma	X	X	X	X
Oregon	X	10,000 lbs. carrying capacity 600 lbs. per inch width of tire.	X	X
Pennsylvania	Width over-all 96 in.; over-all length 336 in.	26,000 lbs. gross weight distributed not more than 19,500 lbs. on one axle nor more than 800 lbs. per inch of tire width.	One	State Highway Commissioner may issue permit for operation of restricted vehicles or more than one trailer.
Rhode Island	X	Without special permit gross weight of trailer limited to 4,000 lbs.	X	State Board of Public Roads may issue permits for trailers with gross weight of more than 4,000 lbs.
So. Carolina	X	8,000 lbs. capacity	X	Highway authorities may grant permit for operation of heavier vehicle.
So. Dakota	X	X	X	X
Tennessee	X	X	X	X
Texas	Width of body 84 in.	5,000 lbs. gross weight per wheel distributed not more than 500 lbs. per inch width of tire.	X	State Highway Department may issue permit for heavier or wider loads.
Utah	X	20,000 lbs. gross weight	X	X
Vermont	Width 96 in.; height 12 ft. 2 in.	12,500 lbs. in towns or incorporated villages, other places 10,000 lbs. gross weight distributed not more than 600 lbs. per inch of tire width.	One	Local authorities may issue permits to operate restricted vehicles over highways subject to their control.
Virginia	X	24,000 lbs. gross weight distributed not more than 700 lbs. per inch of tire width for solid tired vehicles.	X	X
Washington	X	10,000 lbs. for load outside of cities of first or second class.	X	Cities of first and second class may by ordinance permit more than 10,000 lbs. for load within their borders.
W. Virginia	Width 90 in.	30,000 lbs. gross weight distributed not more than 600 lbs. per inch of tire width.	X	Highway officials may issue permit for operation of wider or heavier vehicles over highways subject to their control.
Wisconsin	Width over-all 96 in.; length 30 ft.	24,000 lbs. gross weight distributed not more than 18,000 lbs. per axle nor more than 800 lbs. per inch of tire width.	X	In cities of first class officials may issue permits for operation of trailer trains not exceeding 100 feet in length.
Wyoming	X	X	X	X
District of Columbia	X	12,000 lbs. gross weight on bridges with wooden floors; 30,000 on any other bridges.	One	Engineer Commissioner may issue written permits for operation of heavier vehicles over bridges.

Restrictions Advocated by Proposed Uniform Vehicle Law

Size	Weight	Number of Trailers	Special Permits
Width over-all 96 in.; height 12 ft. 6 in.; length 30 ft. for single vehicle; 85 ft. for combination of vehicles.	28,000 lbs. gross weight distributed not more than 22,400 lbs. on one axle nor more than 800 lbs. per inch of tire width measured between the flanges of the rim.	X	Officials may issue permits for operation of restricted vehicles over highways under their control.

Data courtesy National Automobile Chamber of Commerce

The foregoing restrictions are liberal enough to permit a state to take advantage of the economies which come from the use of the larger commercial motor vehicles; on the other hand, they are low enough and of such a character that vehicular travel on the highways is amply safeguarded and highway foundations and surfaces fully protected from destruction. This is particularly true in the case of weight restrictions where a gross weight of 28,000 pounds distributed not more than 800 pounds per inch of tire width is advocated.

A special committee composed of representatives from the American Association of State Highway Officials, National Automobile Chamber of Commerce, American Automobile Association, and Highway Industries Association drafted the proposed Uniform Vehicle Law, in which these provisions, among others, are recommended for uniform adoption by all of the states. The committee's experience and ability in matters of this sort and the long and painstaking efforts which they gave to the size and weight restriction phases of the subject should make their advice of particular value to the state lawmakers, who in the future may consider laws along these lines.

Who Should Pay for Pavement Between Street Railway Tracks?

By William P. Capes
Director, New York State Bureau of Municipal Information

AS a result of a nation-wide agitation by street railway companies within the last year or two, public service commissions and other similar regulatory bodies in a number of states have recommended that state laws and local franchises requiring traction companies to construct and maintain pavements between and a certain distance on either side of their tracks, should be changed so as to relieve the corporation of this expense. Among the state bodies making such a recommendation was the Public Service Commission for the Second District of New York. In its last report to the Legislature it said:

"The attention of the Legislature is directed to those provisions of section 178 of the Railroad Law which require street surface railroads to have and to keep in permanent repair that portion of any street, avenue or public place between its tracks, the rails of its tracks and 2 feet in width outside of its tracks. In nearly all cities it has been necessary to increase the rates of fares on street railroads, so that the 5-cent fare formerly in common use has been largely superseded by higher rates.

"The Commission is of the opinion that it is highly desirable to return as soon as possible to the 5-cent fare. Increased fares tend to decrease the volume of travel, and it seems evident that in such case the passengers who discontinue the use of street car facilities must in large part comprise that element of the community which most feels the deprivation. The requirement of street paving and repair in the statute referred to constitutes a very heavy financial burden on the urban line, which, of course, must be recouped out of earnings. We beg to point out that the conditions which gave rise to this statutory requirement have, at least in the larger communities, for the most part passed away. At the time of the imposition of this burden there was little track support or pavement. With the cobble or sandstone pavements of that day, laid on sand, there was a strong tendency for those in charge of horses and vehicles to make use of the track as the smoothest part of the roadway. The result was the rapid disintegration of that part of the pavement contiguous to the rails, for which, naturally, the railroad company was held responsible. It will be recalled also that at that period street cars were universally drawn by horses, and the use of the pavements between the tracks by such horses was very great, and contributed in large degree to the wearing out of the pavements. With the present-day heavy construction of both railroad and pavement, supported by concrete, and the substitution of motors for horse-drawn vehicles, these conditions have largely ceased to exist. We therefore believe that the Legislature could with justice require the modification of this requirement."

This summarizes the arguments that have been presented by the traction corporations in support of their contentions that they should be relieved of this item of expense.

As an aid to the cities where efforts may be made to transfer the burden of paving expenses from the traction corporations to the cities or abutting property owners, the New York State Bureau of Municipal Information has prepared a summary of the arguments presented to the Legislature in the briefs submitted by the New York State cities.

The standard type of railroad construction in streets consists of laying wooden ties every 24 inches apart in its subgrades. Its ties are 6 inches in width, 8 inches in breadth and 8 feet in length. On the ties are placed rails which are 4 feet 8½ inches apart. These rails are held together every 16½ feet of track with splice bars belted to the rails, and overlapping the splice bar is a bonding wire transmitting current to the rails.

The ties project 20 inches outside of the rail, and the bonding and splicing bar more than 6 inches in many cases. In a street where double tracks are maintained, the space between the double tracks, usually called the "dummy track," is 56 inches, and with the tie spacing and tie extension as mentioned above, 40 inches of this space is occupied by railway ties.

Heavy urban cars, and not the ordinary travel, are responsible for constant repair to pavements.

The weight of the modern electric car is from 6 to 10 times the weight of the horse-car formerly used. This weight produces a correspondingly increased vibration. As the wheels of the cars become flattened or otherwise defective, the vibration is tremendously increased. Vibration necessarily

tends to disintegrate the material of which the pavement is constructed, and the greater the vibration the greater will be the disintegration. In addition, the railroad companies insist on running cars over tracks while the pavement is still under construction, so that a complete bonding of the materials is seldom obtained. This causes a weak point in the pavement, not only along the rails, but for the entire length of the ties (usually 6 feet 8 inches). In cities where the combined load of car and passenger is approximately 25 tons, it is self-evident what happens to that portion of the pavement over the ties and ballast of the railroad company. The injury to the pavement from vibration is infinitely more destructive than any surface wear that could be produced by the travel of horses.

The old cobblestone and sandstone pavements used when horse-cars were operated, were porous, and the penetration of water into the subgrade was unimportant. The modern hard-surface pavement is of rigid construction, and requires for its preservation that the surface be impervious to water. No pavement can be laid as securely with two rails spaced at intervals at the center of the street with the same length of life as on a street which is free from rails. The contour of the street must be altered to provide for drainage along and adjacent to the rails, and the inability of any road-bed construction to withstand the seepage of water into it by creeping along the rails is well known. Water is the enemy of pavement, and the rails provide a means for the water to enter underneath the pavement, undermining it and causing it to heave or rot, depending upon the nature of the paving material. The same degree of drainage cannot be provided on streets on which car tracks are operated as can be afforded on streets which have no car tracks. The rail affords the first opportunity for the water to enter the subgrade. It forms the first point of weakness in the pavement. It is, therefore, the point at which the pavement first shows signs of decay. On Castle Street in the city of Geneva, upheavals from this cause have occurred during the present spring between the tracks and for a distance of 15 feet outside of them. The weight of traffic over the pavement in this upheaved condition results in a most destructive collapse or breaking up of the pavement.

It is impossible to maintain any modern satisfactory pavement adjacent to any car track construction unless such track construction is made rigid. The incentive to make such rigid construction now rests with the traction company, to lessen the cost of pavement maintenance. With such incentive for the more expensive track construction removed, the company would naturally resort to a cheaper track construction, resulting in an increased cost of pavement maintenance, or would make such pavement most difficult, if not impossible. The enforcement of pavement maintenance under the present law works practically to compel proper track construction and maintenance. No relief from present obligations can be reasonably considered, except in conjunction with thorough control of track construction and maintenance by the municipalities, without soon creating an impossible condition of street pavement maintenance.

In case a company is to construct a track in a street already paved, it becomes necessary to tear up at least 9 feet of pavement in order to lay the tracks. This pavement has already been paid for once, and it may be relaid after the tracks have been placed, in such a way that it is apparently on the surface as good as new, but there is a longitudinal crack in the base which eventually works toward the surface under the stress of constant vibration. This in a short time would mean constant repair.

In the case of replacing of ties, etc., by the railroad company, it is necessary to take up and replace a strip of pavement approximately 9 feet wide. This is a charge which in all fairness should be paid by the railway company. Long before the expiration of the life of the road-bed the railway company is compelled to disturb the pavements to shin joints, renew bonds, replace broken rails and retighten joints, and in performing this service it is necessary to disturb 20 inches of pavement in order to make working room for men and their tools. It is found necessary to renew ties, even though they be embedded in concrete before the pavement has served its life.

The constant tearing up of the pavement to repair car tracks is very detrimental to the condition of a street. A pavement which has been torn up cannot be restored to as good condition as before, consequently the location of railway tracks in a street

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necessarily tends to destroy the life of the whole pavement.

General street railroad engineering has established the fact that repairs to paving in the railroad area consume 17 to 20 per cent of the total cost of maintenance of way, so a reduction of 7/9 of this obligation would not help the railroad company more than the additional cent charged in a 6-cent fare.

The life of the road-bed of a railroad company is about 12 years, and the life of a durably constructed pavement is over 20 years.

It is a well-known fact among engineers that no matter how well a pavement is constructed, it will heave along rail lines and does not settle back in the spring as it should. Each year increases the degree of this trouble. This cannot be attributed to vehicular traffic, for in these days the majority of vehicles are motor-driven, which usually means rubber tires, and it is the practice of most good drivers to keep as far from the rails as possible, if for no other reason than the protection of tires. It is also well known that street railroad companies use quantities of salt around switches in the winter time, and this has a very serious effect on pavement.

The life of a pavement on any street in which street cars are located is reduced 50 per cent. As an illustration of this fact, I refer to Genesee Street in Geneva. There are no cracks from Castle Street to Lewis Street, and the pavement on this part of the street is in excellent condition, while the pavement on the rest of the street, in which tracks are located, is now in such condition that immediate repavement is necessary, although both parts of the street were paved at the same time and with the same kind of pavement.

Defective rails cannot be properly removed and replaced in a 1-foot area, particularly on curves.

Cities should not be required to pay for the cost of greater excavation and heavier construction required under tracks, which are necessary purely for the support of a company's cars.

The presence of street railway tracks in a street necessitates a special and more expensive construction of pavement. It is necessary to make the concrete foundation 8 to 10 inches in depth between the tracks and at the side of the tracks, instead of 5 inches in depth, as in other parts of the street. This special construction has to be carried the full width of the ties (8 feet) and 6 inches beyond on each side, making a total width of 9 feet for a single track. As the railway companies now use T rails instead of flange rails, this necessitates the use of a special type of brick on the inside of the rails, which is more expensive than the regular paving brick. The fitting of these bricks to the rails also involves additional expense in laying the pavements.

The presence of railway tracks requires an increased width of the pavement. This is necessary in order to permit traffic on both sides of a car. Our residence streets are ordinarily paved 24 feet in width, but in a street in which a single railway track is located we consider that a pavement of 36 feet in width is necessary. Under the present law the railway company does not pay the whole cost of this additional width. It would be most unjust to throw a greater share of the cost on the property owners when the necessity for the additional width results entirely from the use of the street by the railway company.

In repairing or connecting water or sewer mains, it is often necessary to excavate under the tracks while cars are in operation, at a considerable additional expense over what such work would cost in streets where there is no street car traffic.. Property owners, likewise, in laying sewer or water laterals are burdened with similar extra expense.

The usual method of proceeding with paving work is by incurring a funded debt on the part of the city for its portion of the expense, and if the road-bed of the railroad company, which has a life of only about 12 years, is to enter into the issuance of bonds by the municipality, which usually extend over a period of 20 years, it will demand of the railroad company such a type of construction as will clearly outlive the issuance of bonds. Our experience with the methods of track construction used by street railway companies in paved streets is that they are of inferior character and have subjected the city to an expense which would not have been encouraged had no tracks existed on paved streets.

In cities where large snowfalls must be anticipated, the operation of snow-plows and snow-sweepers tends to break down the pavement between the rails. We maintain

Champion Snow Plow attached to a Sauer Truck. Used by the City of Brooklyn, New York.

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that the city should not be asked to correct conditions due to the operation of plows, etc.

It is fallacious to believe that the conditions existing to-day relative to the destructive influence of trolley tracks and the operation of trolley cars over them, are not the same as they have always been. The traction companies' false idea of economy in general has been a reduction of the first cost in the ballasting of their tracks. This, in conjunction with the rapidly increasing weight of cars, has extended the circle of influence of destruction more than 2 feet outside the outside rail.

If the traction companies are relieved of this obligation, the increased cost of pavement and repair is thrown back on property owners by assessment for local benefits derived, or, if a general improvement, new revenue has to be obtained by an increase of the general tax.

If it is a question of financing the work, surely the railroads, and indirectly the people who use them and benefit therefrom, should stand this cost, and not the entire community. Not over 50 per cent of the population have occasion to use the railway, and it does not seem proper to ask those who derive no benefit therefrom to help pay the construction and repair which would be the case if there were a charge on the city.

The statute which it is proposed to amend is fair to the railway company in that the area of street pavement which it is now obliged to maintain is that area within which experience of many years has shown the street pavement is particularly affected by the maintenance and operation of its lines.

The presence of poles between the tracks limits the surface area of the street available for traffic, and distributes over that portion of the street outside of "the dummy" more traffic than would ordinarily come on it, so that the practical result is that the railroad companies appropriate to their exclusive use that portion of the street between the tracks where the trolley poles have been installed between them.

In the borough of Manhattan in New York City all of the street surface railroad companies are operated with the underground electrical system, which requires the installation of so-called "channel" or "slot" rail in the middle of the space between the two rails of each track, so that in the center of the space between the rails, which, under the proposed bill, the city would be obliged to repair, we have a railroad structure the maintenance of which requires constant interference with the pavement between the rails and the tracks, and we have, further, manhole boxes, so-called, every few feet, approximately a foot square, the metal covers for which are located in the space between the slot or channel rail and rail of the track. These covers when placed opposite to each other on either side of the channel rail, as they frequently are, occupy almost the entire space between the two rails of the tracks. In the type of construction to which we have referred it will readily be seen that the pavement between the rails of the tracks is divided by the railroad structure into oblong strips or a series of small patches. These railroad structures tend greatly to diminish the life of the pavement. The traffic in the city of New York is very heavy, and when the wheels of a heavily loaded vehicle pass from the metal structure of the railroad companies onto the pavement, there is a grinding or wearing effect on the pavement, which, being softer than the metal structure, is soon ground and worked away. Ruts, holes and depressions first appear in the pavement immediately adjoining the rails of the tracks and by the traffic are gradually extended so as to include the entire space between the rails of the tracks and several feet outside of the outer rails of the tracks.

Nine feet, a dimension controlled by the 8-foot railroad tie, should be definitely marked off by construction joints, and 9 feet built and maintained by the railroad company. This places entire responsibility for damages to subsequent failure within the railway strip, where it belongs.

If expense for pavement adjacent to rails and 2 feet outside has heretofore been deemed a legitimate charge to street railway companies, a change is not considered justifiable now in the light of the usage of the heavy cars, higher speed and more frequent operation.

A railway company is constantly ripping pavements to repair its street car tracks. It is absolutely impossible for a company, were it to maintain only 6 inches in width on each side of its rails, properly to repair its tracks without disturbing other parts of the pavement, this necessitating an added expense to be borne by the city.

A Financial Service For the Municipality

We are prepared to inform municipal officials regarding

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Our municipal department handles state, county and municipal bonds representing over thirty states in the union. Our experience and facilities are at the disposal of any municipality.

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Municipal Finance

BONDING **ACCOUNTING** **TAXATION**

A Well-planned Municipal Report

FINANCIAL statements and reports upon the administration of a municipality's affairs are usually noted for their obscurity. In consequence there is often a suspicion that public funds are not being efficiently expended in the best interests of the people.

In making a report to the citizens upon the administration of a city's affairs and possible future development of the community, so that maximum benefits will be received at a minimum of cost, facts and figures should be presented in an attractive and illustrated form so that they can be understood by every citizen. Without that coöperation the best results cannot be obtained.

In the Province of Saskatchewan, Canada, the government of cities is controlled by a common City Act which stipulates that a report upon the administration of the city's affairs must be presented to the ratepayers at a public meeting two weeks before the annual election of aldermen, the intention being to furnish the citizens with information of the city's affairs so that they can intelligently vote at the ensuing election.

The writer found that very few attended these meetings and the cause was chiefly the fact that it was very tedious to sit and listen to lengthy reports containing innumerable statistics being read from a statement.

The policy was then adopted of illustrating the report with graphs, diagrams and photographs thrown upon a screen; and instead of reading the report it was delivered in the form of a speech and each diagram and graph fully explained.

This method resulted in making the annual meetings very much more interesting. The citizens could see from the diagrams at a glance how the city's tax levy was apportioned, how the expenditure was made in relation to the appropriations, how the taxes were being collected, how expenditures and revenues compared with previous years, how the electric light and power load was increasing, how the street railway traffic was decreasing or increasing, how the city's future requirements and development should be dealt with.

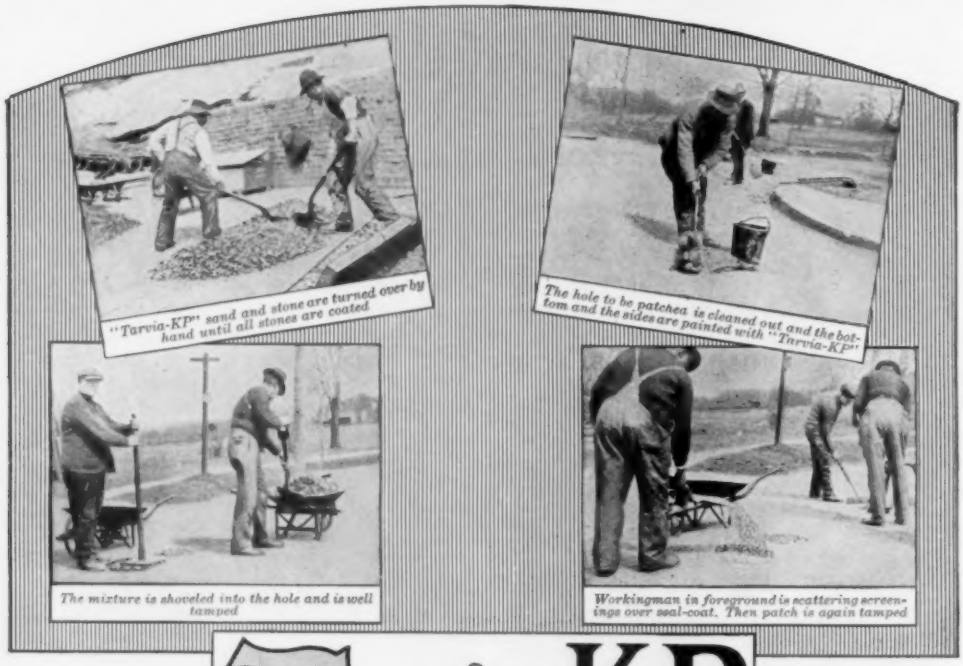
Then last year, 1919, a further innovation was inaugurated in order to make plainer, if possible, to every citizen the true position of the city's affairs. The writer put himself in the position of a ratepayer who wanted information about the city and asked himself the following twenty questions and the report constituted the replies. The answer to each question was illustrated with a graph, diagram or photograph so that the information was made as plain as possible.

SECTION I.—Current Revenue and Expenditures

1. How does the city administration obtain its revenue?
2. How is the citizens' money expended?
3. What is the total amount paid by the city in wages and how has this amount varied since 1913?
4. What is the total amount of the tax levy and how is it distributed?
5. How do tax collections this year compare with previous years, and what amount is in arrear?
6. What amount does the city owe its bankers on current account?
7. Will the city obtain title to much property as a result of tax sales, and what will be its policy in regard to same?
8. How are the city's services administered and with what results?

SECTION II.—Capital Revenue and Expenditures

9. What is the amount of the city's debt; how has it been incurred; and what are its limits?
10. When must the city's debt be paid off?
11. What provision is being made to pay off the debt?
12. What investments have been made with the sinking fund, and with what results?
13. What effect has the city's debt upon the annual tax levy?


"Tarvia-KP" sand and stone are turned over by hand until all stones are coated
The hole to be patched is cleaned out and the bottom and the sides are painted with "Tarvia-KP"
The mixture is shoveled into the hole and is well tamped
Workingman in foreground is scattering screenings over seal-coat. Then patch is again tamped

Tarvia-KP

FOR COLD PATCHING

Road repairs *now* save money next spring—

If your roads are scarred from summer traffic, prompt patching with "Tarvia-KP" will save expensive repair work in the spring of next year.

The fall and early winter is the time to make economical repairs that will put your roads in prime condition during the winter.

"Tarvia-KP" used now, and whenever your roads are free from snow, will make small patches answer where larger ones would be required next spring. And the time you save can well be used next spring in the work of road surfacing and new construction.

"Tarvia-KP" is unequalled as a quick, dependable, ever-available patching material for every type of road. It requires no heating, is extremely easy to handle and will stand up under the heaviest traffic. Freezing does not injure it.

Address our nearest office, outlining your road problems and get the free advice of our trained specialists.

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Atlanta Duluth Milwaukee Bangor Washington Johnstown Lebanon Youngstown Toledo Columbus
Richmond Latrobe Bethlehem Elizabeth Buffalo Baltimore Omaha Houston Denver Jacksonville
THE BARRETT COMPANY, Limited: Montreal Toronto Winnipeg Vancouver St. John, N. B. Halifax, N.S. Sydney, N.S.

SECTION III.—Public Utilities

14. What public utilities do we own and how much capital have we invested in them?
15. What are the operating costs, revenue, etc., of each utility?
16. Do you consider that ownership of the public utilities by the citizens has been a success, and will rates have to be increased to continue their profitable operation?

SECTION IV —Future Requirements and Development of City

17. What will be the effect on the annual tax levy if the proposals of extending the Hospital, the Collegiate, and the Public Schools, etc., are carried out next year?
18. What do you consider are the most urgent requirements of the city, affecting its future development?
19. What can be done to provide better facilities for recreation, and how can they be obtained without increasing the city's debt?
20. What will be the effect on the city's supply of water, if the towns and cities in the south part of the Province obtain their supply from the South Saskatchewan River?

The above method of presenting the report resulted in a crowded meeting of citizens and the whole of the phases of the city's government appeared to be clearly understood by those present. One of the greatest drawbacks to efficient municipal government to-day is the lethargy of the general public, which has been fostered by obscure, unintelligible and uninteresting reports. The Saskatoon plan for presenting a municipal report will do much toward changing this apathy to intense and general interest in civic affairs.

C. J. YORATH,
City Commissioner, Saskatoon, Canada.

National Community Board Organized

TO encourage the community center movement throughout the United States and to promote a citizenship organization on a democratic basis, there has been incorporated in Washington, D. C., the National Community Board. The moving spirit in the new organization, and its first president, is Henry E. Jackson, who, until the recent discontinuance of the Community Center Division of the United States Bureau of Education, was the Bureau's special agent in community organization. The other officers are: Vice-President, Oliver P. Newman; Secretary, Ray G. Edwards; Treasurer, Benedict W. Law.

In addition to the general training in citizenship through its continuous practice in community centers, the National Community Board will aim to promote, as a community center activity, the organization of all young men and women, previous to their twenty-first birthday, into special training clubs, and to suggest the methods by which they may Americanize themselves and secure better equipment for the duties of citizenship.

The Board expects to arrange each year for the meeting of a National Assembly for the purpose of enabling its members to make a special study of the science and art of community organization, to learn about the progress of community development throughout the nation, and to assist each other by pooling their experience.

It is planned to finance the work of the National Community Board by raising an endowment fund, the conditions of which are specified as follows in the certificate of incorporation:

That at the end of twenty-five years the Board shall go out of business as a promoting agency, and that all funds in its possession at that time shall be returned or otherwise disposed of, as any individual donor may designate;

That the portion of the endowment fund raised by popular subscription shall, at the end of twenty-five years and in proportion to the amount contributed by the citizens in each state, be given to the Department of Public Instruction or other public educational agency in each state, to be used for the promotion of democratic community organization in any way such agencies may deem wise;

That any unconditioned trust funds or other property held by the Trustees shall, at the end of twenty-five years, be transferred by them to a similar agency, existing or to be organized, in order to maintain a national headquarters as a service station for furnishing information and a training school for social engineers.

If fire drills won't do — What?

"I CAN'T believe it—a fire in *one* hospital out of every *eleven*, each year," said the famous surgeon. "That shows the need for radical action."

"Frankly, I'm puzzled," he said earnestly, "we've tried drills again and again, of course. But they are unwise for hospital use."

"Even when the patients are told several times that a fire drill will occur at a certain time, even with low-toned gongs and the drills executed in the quietest way, often we have had very serious set-backs to some of our more nervous patients, because they were afraid that it *might be a real fire.* What are we going to do?"

Suppose hospital fire drills were practical. They are not *sure* of saving lives—and they *can't* save the buildings. But Grinnell Automatic Sprinklers can *do both—and do.* With Grinnell Sprinklers, nurses and doctors won't need to live and work in constant dread of extra-hazardous rooms, X-ray machines, alcohol lamps, electrical devices, inflammable materials, and the like. With Grinnells on duty, day and night, even the patients have perfect assurance that they are really safe. They know that when the fire starts, the water starts.

Not all hospital authorities, or even the hospital architects, realize the great need of sprinklers for hospital buildings. Perhaps it is partly due to this fact that we have such an appalling number of dreadful hospital fires—one fire each year to every eleven hospitals.

Read — "*Fire Tragedies and Their Remedy*"

Our book "Fire Tragedies and their Remedy" touches on the subject of hospital fire traps and hospital fire safety, and if you would like to have a copy for your own information and use, we shall be glad to mail one to you. Just drop us a one-cent postal—TODAY. Address, Grinnell Co., Inc., 283 W. Exchange St., Providence, R.I.

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Complete Engineering and Construction Service on Automatic Sprinklers.
Industrial Piping, Heating and Power Equipments. Fittings, Pipe, Valves.

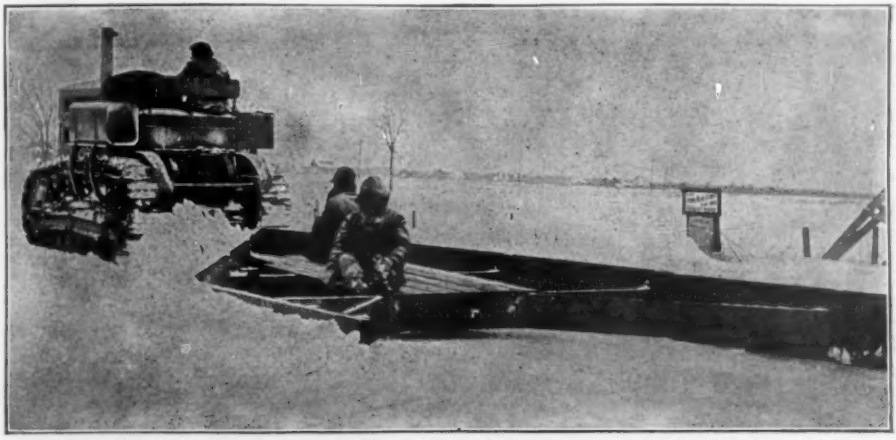
GRINNELL AUTOMATIC SPRINKLER SYSTEM—*When the fire starts, the water starts.*

Using the Tractor to Clean City Streets

Tractor Hauls Snow-Plow After Eleven-Inch Snowfall in Grand Forks

By G. S. Giles
City Engineer, Grand Forks, N. D.

THE winter of 1919 proved so trying to many municipalities in the matter of keeping streets open that many unusual devices have been put into operation thruout the country for this purpose. While in Grand Forks it is not necessary to completely remove the snow from the streets, as is the case in more congested communities, it is very necessary that drifts be removed and that the streets be made reasonably clear for traffic.



A CATERPILLAR TRACTOR HAULING A HEAVY SNOW-PLOW IN GRAND FORKS, N. D., BREAKING OPEN THE ROADS AFTER HEAVY SNOWFALL

On November 10 the first heavy fall of snow came to Grand Forks. It amounted to 11 inches falling in 24 hours, accompanied by a high wind, which drifted the snow from 2 to 3 feet deep on some of the streets. In order to attack these huge drifts, a snow-plow was built of 2-inch planks, 2 feet high and with a spread of 15 feet, with extended parallel sides of 8 feet in order to keep it from sluing. On November 18 a demonstration was held in the city, when this new heavy snow-plow was hauled by a Holt tractor to open up the street.

Between November 10 and 18 there was a thaw and the snow was wet and hard to handle, but the tractor successfully hauled the plow and opened the streets in a very satisfactory manner. The City Council expressed its willingness to purchase the tractor to be held in readiness for this type of work and other municipal hauling during the summer, but there was no appropriation in the street fund to cover the expenditures, so it was impossible to purchase it at that time. From the demonstration the municipal officials were well satisfied that this method of opening up streets is satisfactory, economical and thoro, particularly if it is possible to get on the streets during the storm or immediately after it, before traffic is moving and packing the snow.

Snow Removal a Fire Prevention Measure

As a check on the ravages of fire, the clearing of city streets is important, for with a clear roadway the heavy motor fire apparatus can operate with the same facility as in summer.

The Jack-Knife Bridge over the Chicago River, Chicago, Ill.

The Monroe in a City Engineer's office

City of Chicago Dept. of Public Works

"We find the Monroe Calculating Machine to be very satisfactory as a *time-saver in* making our *cost* and *time records* and in preparing *engineering estimates.*"

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Otherwise, lightning-like changes of market prices may render void cost estimates long before they are completed.

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Arrange for a demonstration in our office on our own work.
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News and Ideas for Commercial and Civic Organizations

Olathe's Water-Supply to be Increased

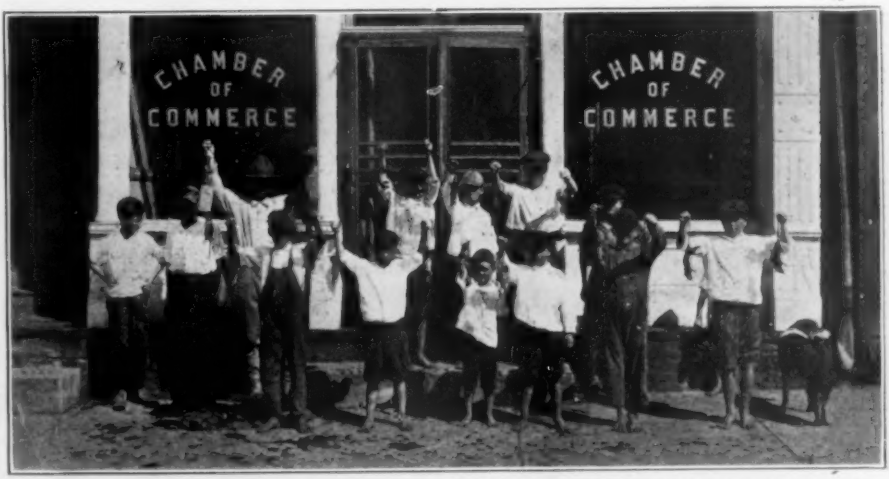
OLATHE, KANS.—The Olathe Chamber of Commerce was recently asked by the City Commissioners to make an investigation of the water-supply system of the city and submit recommendations for its improvement. This was done. The investigation revealed that one of the reservoirs located three miles west of the town has a capacity of 50,000,000 gallons, and that two smaller ones located within the city have a combined capacity of 35,000,000 gallons. The largest reservoir was built only five years ago, but the engineer did not realize that there would be an increase in consumption from 75,000 to 175,000 gallons per day in five years.

In looking about for ways and means of increasing the water-supply, the Chamber's committee found a very desirable site below the present dam, which would provide the city with an almost inexhaustible supply of water but would call for an expenditure of from $150,000 to $175,000. Only $65,000 was available for the improvement. Another recommendation was therefore made which called for the addition of five feet to the present dam. This would increase the capacity from 50,000,000 to 100,000,000 gallons, and would cost from $45,000 to $50,000, including the cost of the land that would have to be condemned. The last recommendation was accepted by the Commissioners, and plans and specifications were drawn, and submitted to and passed by the State Utilities Commission. Work on the dam will be started soon.

L. E. DIVELBISS,
Secretary, Olathe Chamber of Commerce.

Boy Scouts Aid in Rat Extermination Campaign

FLORENCE, ALA.—The Florence Chamber of Commerce recently conducted a rat campaign in which five Boy Scouts figured conspicuously. The Chamber secured 125 official traps, which were distributed among the five boys, who were offered five cents per rat by the Chamber of Commerce for every one they would catch. The services of an expert rat-catcher from the United



A FEW OF THE BOYS WHO ENGAGED IN THE RAT EXTERMINATION CAMPAIGN CONDUCTED BY THE FLORENCE, ALA., CHAMBER OF COMMERCE

The

Recognized Textbook on Playground Planning —

This 128-Page Medart Catalog is recognized everywhere as a text-book on Playground Planning and Installations. It shows in detail just what apparatus is best suited for boys, for girls and for smaller children. It shows ideal playground layouts, where cost is secondary to service and it shows, too, what combinations are most desirable for smaller communities or centers where only a limited appropriation is available.

And, of course, it points out convincingly just why you should always specify Medart Playground Equipment.

Add this elaborate book to your library—it is an actual help to anyone interested in Playgrounds and Playground Planning. Sent promptly on request.

FRED MEDART MFG. CO.
Potomac & De Kalb Sts.
St. Louis, U. S. A.

States Public Health Service were secured to assist in the campaign.

These five boys, with the assistance of a number of other boys whose services had been enlisted, caught over one thousand rats in ten days. The rodents were brought to the Chamber of Commerce and paid for, dipped in kerosene and sent to the incinerator. The Chamber expects to conduct such a campaign annually hereafter.

H. H. DUNN,
Secretary, Florence Chamber of Commerce.

Census Recount Provides New City Directory

PORTLAND, IND.—Our little municipality was greatly disappointed over the results of the government census, which credited Portland with 5,958 inhabitants. With our nineteen thriving industrial plants rapidly expanding, an oil boom in full swing and every business and residential property in the city occupied, it was only reasonable to expect that Portland's population would show an increase of at least 2,000 over the 1910 census figures of 5,130. The government announcement created general dissatisfaction, and many leading citizens entered strong protests with the Portland Commercial Association urging that the organization take steps to secure a recount. Negotiations with the census officials revealed that it would be impossible to have this done, hence the Commercial Association decided to undertake the work. A practical plan was evolved whereby the city's population could be correctly counted and the enumeration made to pay for itself by compiling the information thus gathered into a new and much-needed city directory.

The new enumeration was taken as of July 1. College students, home on their summer vacation, solved the problem of securing intelligent and capable canvassers and did the work for the price of one cent for each person enumerated. The enumeration blank, which was filled out for each family and adult, includes the full name, age, street address, occupation, name of employer, how long a resident of the city, and whether or not the person owns real estate, especially his home.

The new directory, which is now being prepared, will contain in addition to the alphabetical arrangement of names, a classified business and public official roster, railroad time-tables, a street directory, and other detailed information concerning the city which is in every-day demand. No business or commercial advertisements, other than those the Commercial Association uses in its program of community publicity, will appear in the directory.

As no city directory of Portland has been published for six years, this work is proving a very valuable service to the community, which is evidenced by the fact that the first edition of 600 copies has already been over-subscribed, even before it is off the press, at a price of $1 a copy. This price just covers the cost of the enumeration and the printing. It is about one-third that charged for former editions put out by professional firms, and our merchants are not called upon to finance its publication through their advertisements. The new directory will prove an excellent medium for publishing the Commercial Association's community advertisements, which makes it unnecessary to call upon the publicity fund for this particular purpose.

The increase in population which it is now certain the enumeration will show will be a great encouragement to those loyal and public-spirited citizens who have been working for a better and a bigger city, for it will show that their work is bringing material results.

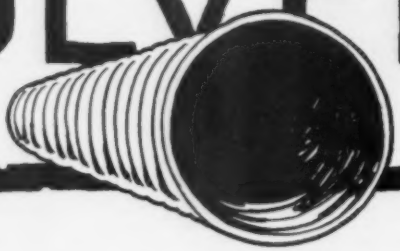
KEITH SPADE,
Secretary-Manager, Portland Commercial Association.

Policeman Secured Quickly Through New Signal System

WEBSTER, MASS.—Realizing the lack of police protection to the people of Webster and Dudley through the absence of an adequate police signal system, the Webster-Dudley Chamber of Commerce recommended to the Chief of Police the installation of a signal light and telephone on Main Street where it would be easily accessible at all times. The Chief welcomed the suggestion, and a No. 40 marine signal light was accordingly purchased and placed on a post in the center of the town. A special telephone was installed on the same post and arrangements were made with the Telephone Company whereby the operator receiving a call for a policeman would immediately switch on the signal light and plug in on the special line. A police officer is always within a short distance of this light and can answer it immediately through the special telephone.

In a test case by newspaper men, an

NEWPORT CULVERTS



Serviceable for every Service

Whether used in the city street, the country road or state highway, Newport culverts give dollar for dollar service. In all the years we have been making these durable culverts, we have yet to receive a complaint regarding unsatisfactory or defective service. However, we have received dozens of letters complimenting us on the merits and the lasting qualities we have put into our products

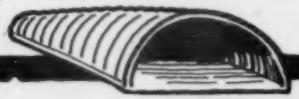
NEWPORT CULVERTS ARE MADE FROM GENUINE OPEN HEARTH IRON. GOVERNMENT TESTS PROVE THEM 99.875 % PURE IRON, COPPER ALLOY, ABSOLUTELY RUST-RESISTING

DON'T FORGET TO LAY NEWPORT CULVERTS NEXT TIME. ONCE LAID, YOU CAN FORGET ABOUT THEM.

SEND YOUR ADDRESS FOR FREE BOOKLET

NEWPORT CULVERT Co

NEWPORT 542 WEST 10TH ST. KENTUCKY



officer answered the telephone in less than two minutes from the time the newspaper men filed the call.

This is really only a temporary measure, but it shows the advantage of a police signal system over the old method of calling several stores on Main Street in an effort to find an officer. Specifications and prices have already been secured for the installation of an up-to-date system which will require a man to be on duty at the central office at all times. It is hoped that the great usefulness of this light will impress upon the citizens the value of having a special system of lights and regulation police boxes installed all over the town.

HARRY L. NADO,
Formerly Executive Secretary, Webster-Dudley Chamber of Commerce.

How the Hagerstown Chamber Met the Need for Homes

HAGERSTOWN, MD.—One of the principal items in the program of work adopted by the Hagerstown Chamber of Commerce when it was organized in 1918-19 called for the relief of the local housing situation. It was not until the summer of 1919, however, that definite action was taken. At this time the Chamber ascertained by means of questionnaires that there were at least one hundred men employed in the principal industries of the community who would buy homes if they had an opportunity. With this information in its possession, the Chamber organized a committee to devise ways and means, which, after several months' work, brought forth the plan of organizing the Hagerstown Homes Corporation.

The Homes Corporation issued stock to the amount of $100,000, which was subscribed for by the leading industries as well as many private individuals in the city. The stockholders of the newly formed corporation then took control, and at this point the work of the Chamber of Commerce ceased and the new-born organization proceeded to its business of providing homes.

During the fall and winter of 1919 numerous plots of ground were purchased in central locations throughout the city. In the meantime a competent manager was appointed, who was instructed to look into various types of construction with a view to selecting the type best suited to the city's needs. A large quantity of government material was purchased at a great saving in cost. Early in the spring of 1920 actual construction was begun, and at the present time seventeen houses are completed, and other groups will shortly be started. The homes are being sold on very liberal terms after the following plan:

The purchaser pays on delivery of deed 10 per cent of purchase price in cash.

Any of the local banks accept a first mortgage for 75 per cent of purchase price.

The Hagerstown Homes Corporation takes a second mortgage for 15 per cent of purchase price.

The purchaser under the terms of the second mortgage pays to the Hagerstown Homes Corporation monthly payments equivalent to one-twelfth of 10 per cent of the purchase price, which payments are applied, first to the interest on the first and second mortgages respectively, and the balance at the end of each six months' period to the reduction of the second mortgage until the latter is paid off.

To the Hagerstown Chamber of Commerce belongs the credit for starting and pushing to a successful conclusion the organization of the Homes Corporation. Many difficulties were encountered in getting the project under way, but now that satisfactory results are being secured, the men who put their time and effort into the work feel that it was well worth while.

SIMMS JAMIESON,
Manager, Hagerstown Chamber of Commerce.

A PANORAMIC VIEW OF THE HOUSES IN PROCESS OF CONSTRUCTION IN HAGERSTOWN, MD., BY THE HOMES CORPORATION, ORGANIZED BY THE HAGERSTOWN CHAMBER OF COMMERCE

Chain vs Worm

It is a proven fact that the unsprung weight of chain-driven trucks is about one-third that of equal capacity worm-driven trucks.

Official government tests disclosed the verifying fact that a 5½-ton chain-driven truck had only 68% of the destructive road-impact of a 3-ton enclosed rear-drive truck. This is one of the reasons why the makers of the Bull Dog Mack have permanently retained and perfected the chain drive. It has made the Mack conspicuously successful in fulfilling municipal requirements everywhere.

Distinctive Mack engineering features, combined with 18 basic Mack patents have developed the motor truck the world is talking about.

Capacities 1½ to 7½ tons—Tractors to 15 tons

Our latest catalogues, Nos. 13 and 39, contain a detailed description of the many exclusive features that have made Mack supremacy possible, together with the complete specifications of every model. Send for them today.

INTERNATIONAL MOTOR COMPANY, NEW YORK

"PERFORMANCE COUNTS"

Taxation in Ohio

CINCINNATI, OHIO.—Thirty-two chambers of commerce working together for the financial relief of their respective cities and all the other municipalities of Ohio affords an interesting spectacle.

Some years ago the Ohio State Legislature passed what is known as the Smith One Per Cent Law, limiting the tax rate to one per cent of the taxable valuation of all property in any taxation district without a vote of the people, and to one and one-half per cent with a vote of the people, plus certain sinking fund and interest charges which were exempted from the above rates.

It was expected that the law would force up tax valuation approximately to the sale value of property and compel greater economy in public expenditures. In a measure it accomplished the former, and for a time public expenditures were held down in some degree. But the demands of the people for better living and additional governmental service beyond that known to their grandfathers, combined with advancing prices, made it absolutely impossible for municipalities to live within the limits provided by the Smith Law.

Cities in Trouble

Conservative spending was followed by reckless municipal finance, including the issuance of bonds for current expenses and ever-growing deficiencies. Most of the cities of Ohio, therefore, are facing bankruptcy, and previous efforts to solve the problem have not succeeded. Within the past year a joint committee of the State Legislature rendered a report and drafted certain bills providing for a revision of the taxation system of the state. These failed. Remedial legislation was passed, but it failed to correct the difficulty.

Perhaps in no other city of the state is financial relief needed more than in Cincinnati. For this reason the Cincinnati Chamber of Commerce became interested.

On May 5 Dr. D. Frank Garland, Director of Public Welfare of Dayton, Ohio, spoke at a forum meeting of the Chamber of Commerce on "A State-wide Program of City Finance." In the meantime, C. R. Hebble, Executive Secretary of the Cincinnati Chamber of Commerce, suggested that the chambers of commerce of Ohio could do more than any other group to bring together the varied interests for a solution of the problem. Accordingly, at the annual meeting of the Ohio Commercial Secretaries' Association, held in Cincinnati on May 21, 1920, Mr. Hebble proposed that a meeting of representatives of all the chambers of commerce of the state be held at Columbus some time in the month of June for the purpose of devising some practical plan for the financial relief of cities. He urged that at the very outset of the proposed meeting all should bury their differences and "agree to agree."

The Commercial Secretaries' Association thereupon asked the Cincinnati Chamber of Commerce to call the proposed meeting. It was held on June 18 at the Columbus Chamber of Commerce, and was attended by about 75 persons representing 32 chambers of commerce in the state. Lowrie G. Sater, of the Columbus Chamber of Commerce, was made permanent chairman, and an all-day session ensued. Regardless of differences, everybody approved the proposal that all should "agree to agree."

Before adjournment a committee of five was appointed, with J. B. Wiles, Manager of the Portsmouth Chamber, as chairman, to work out a practicable plan and report back to the general body.

Mr. Wiles' committee was given authority to add to its number members representing the various agricultural, labor and business interests of the state. It was supposed that the great difficulty in securing any form of relief in the past was that the agricultural interests of the state were wedded to the Smith Law and it was generally believed that the "Corn Stalk Club" would block any proposal which the cities might bring forth. But a few far-seeing optimists did not think so.

Rural Organizations Coöperate

The first meeting of Mr. Wiles' committee proved that the optimists were right. At this meeting, which was held at Columbus June 29, there were in attendance about as many representatives of the Ohio State Grange, the Ohio Farm Bureau and the Ohio Federation of Labor as came especially in the interest of the cities. From the start the representatives from the rural districts showed sympathetic appreciation of the cities' predicament. It was the Pres-

2 Federal 1-½ ton trucks owned and operated by Union High School, Hanford, Cal.

Short hauls, long hauls; live weight, dead weight; rain or shine; winter or summer—the Federal truck for ten years has builded a reputation for dependability.

City and county officials have based their selection of Federal trucks on this dependability. And public officials judge the product they purchase mainly by quality and the record of performance back of the product.

The variety of service given by Federals is as extensive as man's activities are broad. From dump wagons to passenger busses—Federals in different sizes are fitted to the needs of every business, every community.

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Another
FEDERAL

ident of the Ohio State Grange who made the motion for the appointment of a committee to draft a bill to be presented to the next Legislature providing that, pending a general revision of the taxation laws of the state, the present limitation of the tax rate should be modified or entirely lifted for a period of from three to five years to give the needed relief.

This was followed by the adoption of two other motions, one for the appointment of a committee to draft a bill limiting the bonding power of taxation districts, and the other for the appointment of a committee to draft a bill revising the budget system of taxation districts.

Before the general committee adjourned it provided for the appointment of another committee to work out a plan for a State Tax Convention to consider and bring about an agreement providing for a revision of the taxation system of the state.

When their work is finished, these committees will report back to the general committee, and it in turn will report back to the general body composed of representatives of the 32 chambers of commerce. The work is unfinished, but up to the present time the movement has accomplished what seemed to many an impossible task, namely that of bringing to a common agreement the various economic interests of the state on this important taxation problem.

At present there is every reason to believe that all will agree upon a plan which will be formulated into a bill, or series of bills, and that the State Legislature will furnish the cities of the state with the financial relief needed.

To the citizens of Ohio municipalities this movement is of interest because of its immediate practical value. To chambers of commerce and commercial secretaries throughout the country it may be of interest as a bit of organization work that is perhaps unique in chamber of commerce history.

F. P. GOODWIN,
Manager, Department of Civic Affairs, Cincinnati Chamber of Commerce.

THE HOTEL ERECTED IN ASHTABULA, OHIO, BY THE LOCAL CHAMBER OF COMMERCE

Ashtabula's New Hotel a Chamber Project

ASHTABULA, OHIO.—July 15 saw the formal opening of Ashtabula's new $350,000 hotel, which was financed through the efforts of the local Chamber of Commerce. The need for a good hotel had long been felt in Ashtabula, but here, as elsewhere, building construction was suspended during the war and the need remained unfilled. In June of 1919, however, the members of the Chamber decided that the time for action had come, and in a short, intensive campaign, the greater part of the stock was subscribed for.

Building operations were begun immediately, and the hotel, a strictly modern fireproof structure with 109 guest rooms, a large ballroom, and all that goes with a first-

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South Bend, Indiana

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class hostelry, was opened to the traveling public on July 15, 1920.

The entire project was supervised by the Chamber of Commerce. The Secretary of that organization acted as secretary of the hotel building company, and all the bills and pay-rolls were taken care of at the Chamber's offices. The building has been leased to an operating company for a term of twenty years, and the furnishings were provided by that company at a cost of more than $150,000.

ARTHUR F. OTIS,
Assistant Manager, Ashtabula Chamber of Commerce.

The Campaign for Butler's Memorial Hospital a Success

BUTLER, PA.—More than three years ago the Butler Chamber of Commerce felt that a new or enlarged hospital was one of the county's greatest needs, and the securing of an adequate county hospital was one of the foremost items on the organization's program of work.

After considerable deliberation, the Board of Directors appointed a representative to confer with the Board of Trustees of the Butler County General Hospital to ascertain if that institution would welcome the assistance of the Chamber of Commerce in securing sufficient funds either to enlarge the present hospital or to build a new one with sufficient facilities to serve properly the hospital needs of the county. The offer was heartily accepted, and the President of the hospital was asked to help the Chamber of Commerce appoint a representative committee to conduct a campaign for raising the necessary funds.

The Hospital Committee was thwarted for three years in its attempt to launch the campaign, first by the pressure of war work and war campaigns, and later, last fall, by the general steel strike. During this time, however, the committee was not idle nor was its work without results, for during these three years a campaign of publicity was so thoroughly carried out that the entire community was well aware of the acute and growing necessity for enlarged hospital facilities.

The early part of June of this year was finally selected by the committee as the date for the campaign. In the meantime, however, the estimated amount necessary had grown from $150,000 to $300,000, because of the increased cost of building, and a half million net was really needed to erect a satisfactory building. In February a mass meeting was called by the Chamber of Commerce, at which time the date and amount to be raised were confirmed and the decision reached that an outside director should be secured to give the benefit of his experience, one against whom there could be no possible local or petty prejudice. A most competent man was secured by the committee.

On June 8 an organization of 400 persons began the active work of securing subscriptions for the new Butler County Hospital. The community had, in the meantime, decided to erect this new institution of mercy as a memorial to its sons and daughters who had sacrificed and suffered to defend it in the hour of peril.

So thoroughly had the need become known and so well was the proposition sold by the workers that when on the ninth day the campaign closed, Butler County had pledged over $526,000 toward the Memorial Hospital, nine-tenths of this amount being pledged by individuals and firms in Butler city and township, with a population of less than 30,000 people.

As a result of this movement, promoted and fostered by the Butler Chamber of Commerce, not only is Butler County now assured of an adequate hospital and a fitting memorial to her sons and daughters who served at home and abroad during the great struggle, but the community, through the pledge of nearly 400 of its most public-spirited workers, is now practically committed to a two-year budget system of intensive campaigns which will save much time, money, and personal effort in the future, as well as assure adequate support for imperative civic and charitable projects.

W. B. MOREY,
Formerly Executive Secretary, Butler Chamber of Commerce, now Board of Commerce.

Chamber of Commerce Day Held Yearly at Seattle Ball Park

SEATTLE, WASH.—Believing that a baseball team is as much a civic asset as an industrial plant, the Seattle Chamber of Commerce each year holds a Chamber of Commerce Day at the ball park and urges its members to turn out for this yearly mid-season event. In 1919 Seattle had the tail-end club in the Pacific Coast league. It was to prove the city's loyalty to the club that the Chamber of Commerce at that time

THE SECO PORTABLE PUMPING APPARATUS

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In a clean and sanitary manner, safeguarding the health of the City.

Mounted on Special Kelly-Springfield Chassis.

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started a "Booster Day" and succeeded in getting 8,000 people out for the week-day game. This year the club stands higher in the race, and the annual Chamber of Commerce Day brought out 9,000. Next year the organization expects to bring the attendance up to 10,000.

Among the special features staged on Chamber of Commerce Day this year were the dropping of a ball by an airplane, and a burlesque show in which the umpire was buried and consigned to the lower regions, from which he emerged spouting fire.

HAROLD CRARY,
Assistant Publicity Director, Seattle Chamber of Commerce.

Chamber Secures Passage of Jitney Ordinance

SOUTH BEND, IND.—As a result of the efforts of the Street Railway Investigation and City Traffic Committee of the South Bend Chamber of Commerce, an ordinance was recently passed prohibiting jitney busses from operating over streets used by the electric street railway. The ordinance, on which the future service of the electric line is conditioned, regulates the jitneys, requires their owners to procure licenses for the operation of their motor vehicles used in the city, and provides for the revocation of the licenses and penalties for the violation thereof.

The ordinance contains fifteen sections and covers the matter thoroughly. Each driver of a jitney must file with the city controller a contract of liability insurance to provide for the payment of any final judgment that may be rendered against the insured for damages to property, or for bodily injury or death to others resulting from accident or from collision through the negligence of the operator.

The license system requires that the operator shall pay an annual fee of $25 for a vehicle having a rated seating capacity of 5 passengers or less; $35 for a vehicle having a rated seating capacity of more than 5 and not more than 7 passengers; $75 for a vehicle having a seating capacity of more than 7 and not over 12 passengers; and $125 for a vehicle having a rated seating capacity of more than 12 passengers.

The ordinance requires that the operator be at least 18 years of age. It also provides that not more than 5 cents shall be charged between the hours of 5 A. M. and 12 midnight. Upon an operator's being convicted twice for the violation of any of the provisions of the ordinance, his license may be revoked by the mayor. The names of the streets over which the busses are not allowed to run are given.

At the third reading of the ordinance more than one hundred business men and manufacturers were present, and twenty-five representative men spoke of the necessity of regulating the jitneys as a means of bettering the street car service. Figures were presented showing that the street railway company had expended thousands of dollars in improvements, including the purchase of new cars, and that the jitneys operating in its territory take from the public $300 to $400 a day that rightfully should go into the coffers of the street railway company in consideration of its investment and the obligation to render continuous and adequate service.

S. N. VAUGHN,
Editor, *South Bend Today*, the official bulletin of the South Bend Chamber of Commerce.

Education in the Growth and Manufacture of Cotton

HOUSTON, TEX.—In an effort to supply information relative to cotton, its growth and uses, the Houston Chamber has sent to several chambers of commerce in the country a circular letter reading in part as follows:

"The principals and pupils of many of our public schools and other educational institutions have written us so frequently for facts concerning the cotton plant that we have planned to make this information available.

"Our purpose is to supply samples of the cotton boll, these to be accompanied by a non-technical elemental treatise, together with a list of the two hundred or more commodities in daily use in the manufacture of which cotton or its by-products are essential.

"We will deem it a favor if you will be so kind as to arrange to secure from the superintendents the names of the principals of your public schools, that we may arrange to supply their classes, if it is found that they wish to avail themselves of this service."

The proposition appears to be of much interest to the organizations to which it was made, and the Houston Chamber of Commerce feels that the educational work that is done as a result of it will be quite valuable in those sections where cotton is not grown.

GARLAND S. BRICKEY,
General Manager, Houston Chamber of Commerce.

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Saves Time—Money—Labor

Mounted on any 5-TON Chassis of suitable standard make.

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MILWAUKEE WISCONSIN

The City's Legal Rights and Duties

Information for City Attorneys and Other Municipal Officers, Summarizing Important Court Decisions and Legislation

Conducted by A. L. H. Street, Attorney at Law

Supreme Court of New York State Holds Health and Sanitation Exhibit Not a Proper "Park Purpose"

A decision of the New York Court of Appeals reverses a recent conclusion reached by the Appellate Division of the Supreme Court of the state concerning the uses to which Central Park may be put. Apart from its relation to this famous park, the decision of the higher court is interesting because of its consideration in general of what constitutes legitimate park purposes.

Specifically, the decision upholds opposition to the leasing of the Arsenal Building in Central Park for use by an institution organized to "study and promote means and methods of safety and sanitation." The reason for the decision appears in the following extracts from the opinion of the Court of Appeals:

"A park is a pleasure ground set apart for recreation of the public, to promote its health and enjoyment. . . . It need not and should not be a mere field or open space, but no objects, however worthy, such as court houses and schoolhouses, which have no connection with park purposes, should be permitted to encroach upon it without legislative authority plainly conferred, even when the dedication to park purposes is made by the public itself and the strict construction of a private grant is not insisted upon. . . .

"Differences naturally arise as to the meaning of the phrase 'park purposes.' Under local statutes it has been held that a public library may be erected in a park without diverting it from such purposes . . . and the city of Hartford was permitted to turn over a part of the land it had dedicated as a public park to the state for the purpose of a State Capitol. . . . Monuments and buildings of architectural pretension which attract the eye and divert the mind of the visitor; floral and horticultural displays, zoological gardens, playing grounds and even restaurants and resthouses and many other common incidents of a pleasure ground contribute to the use and enjoyment of the park.

"The end of all such embellishments and conveniences is substantially the same public good. They facilitate free public means of pleasure, recreation and amusement, and thus provide for the welfare of the community. The environment must be suitable and sightly or the pleasure is abated. Art may aid or supplement nature in completing the attractions offered. The legislative will is that Central Park should be kept open as a public park ought to be, and not be turned over by the Commissioner of Parks to other uses. It must be free from intrusion of every kind which would interfere in any degree with its complete use for this end.

"To promote the safety of mankind and to advance the knowledge of the people in methods of lessening the number of casualties and avoiding the causes of physical suffering and premature death is the purpose of the Safety Institute of America; to provide means of innocent recreation and refreshment for the weary mind and body is the purpose of the system of public parks. The relation of the two purposes is, at best, remote. No reproach is cast upon the humanitarian aims of the Safety Institute when we say that it must find another place in which to bring them to the attention of the public."

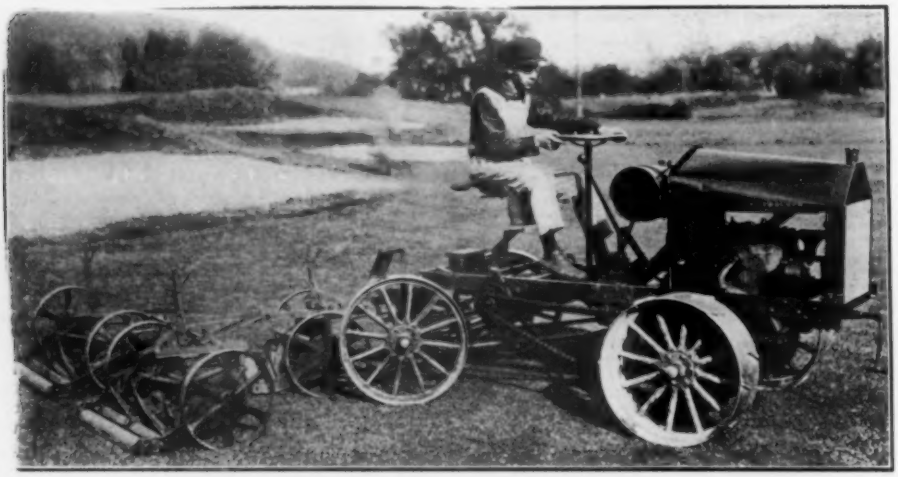
Validity of Ordinance Forbidding Keeping of Hogs and Providing for Summary Seizure and Disposal of Them

Inquiry comes from a city attorney to the Legal Department of THE AMERICAN CITY for citation of court decisions bearing upon the validity of an ordinance of his city virtually purporting to forbid keeping of hogs within the municipal limits, and authorizing summary seizure and disposition of such animals, including those taken up on private land, as well as in streets, etc.

The law has been thus succinctly stated by a standard legal authority:

"Ordinances have been generally sustained which forbid keeping in the corporate limits, or within the 'settled portion of the city,' certain animals, such as hogs, donkeys, stallions and chickens; but some have been held unreasonable and void." (28 Cys. 739.)

Cases supporting the validity of such ordinances are as follows: Smith vs. Collier, 118 Ga. 306, 45 S. E. 417; Commonwealth



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The Shawnee Triple Mower has become the main dependence for parks, golf fairways and lawns of large estates throughout the country.

In combination with the Worthington Tractor it will mow four times as much lawn area as any other mowing apparatus in the world.

The Tractor is especially designed for lawn service. It improves the turf and does not mar or injure the surface. It has patented features which have given it immediate preeminence.

It displaces the horse and reduces the cost of the mowing operation one-half.

The gang mower alone and in combination with a tractor is broadly covered by patents owned by this company.

WORTHINGTON MOWER COMPANY

Shawnee-on-Delaware, Pa.

vs. Patch, 97 Mass. 221; Ex Parte Glass, 90 S. W. 1108; Whipple vs. McIntyre, 69 Mo. App. 397, 402; Smith vs. McConathy, 11 Mo. 517; St. Louis vs. Stern, 3 Mo. App. 48, 54; Quincy vs. Kennard, 151 Mass. 563, 24 N. E. 860; Com. vs. Perry, 139 Mass. 198, 29 N. E. 656; Com. vs. Kidder, 107 Mass. 188; State vs. Hord, 122 N. C. 1092; Darlington vs. Ward, 48 S. C. 570.

Limitations upon the regulatory powers of municipalities are, however, laid down in some jurisdictions. For example, the Mississippi Supreme Court said in the case of Comfort vs. City of Kosciusko, 88 Miss. 611, 41 So. 268:

"The keeping of hogs in a municipality, or the erection of hog pens, may or may not be a nuisance, and it is only when they are such that a municipality has the power to interpose and suppress hog pens or prevent the keeping of hogs in a municipality. An ordinance which provides generally that hogs may not be kept in a municipality, without reference to whether they are or are not a nuisance, is too broad and sweeping in its provisions and cannot be upheld. When the keeping of hogs within a municipality becomes a nuisance, no matter where they may be kept therein, it is not only the power, but it is its duty to abate the same."

On the other hand, the Iowa Supreme Court upheld an ordinance of the city of Cedar Rapids prohibiting hog pens within the city limits, excepting for commercial purposes. (68 Ia. 107, 26 N. W. 33.)

The law is more clearly settled on the point that running at large of swine may be forbidden. (28 Cyc. 739.)

That an ordinance may be annulled for unreasonable failure to provide proper notice and opportunity for hearing to the owner of swine taken up, before selling the same at public auction, is illustrated in the case of Rosebaugh vs. Saffin, 10 Ohio Reports, 31. The Court said:

"The ordinance commands the marshal to seize and impound the property, and then, without any reserve, without any notice to the party, by means of which he might be enabled to exculpate himself, directs it to be sold, and the net proceeds to be placed in the city treasury. Such an ordinance is as contrary to the spirit of the charter as it is alien from the general genius of our institutions."

And in the case of Crum vs. Bray, 121 Ga. 709, the Georgia Supreme Court said:

"To the question whether the ordinance amounted to a forfeiture we have devoted considerable time and study. After reading many authorities we have come to the conclusion that the municipal authorities have power to seize and impound animals unlawfully upon the streets and have them sold for the purpose of paying the reasonable cost of feeding and the impounding fee, provided there is sufficient notice given."

Another decision—Hellen vs. Noe, 25 N. C. 493—one handed down by the North Carolina Supreme Court, upheld the validity of a regulation which ordered the taking up of stray hogs and their sale on three days' notice unless redeemed.

In an opinion more fully discussing the authorities and the particular ordinance submitted to us, we have expressed the view that an ordinance authorizing the seizing of swine on private land and sale on brief published and posted notice, without provision for redemption by the owner, would not withstand attack in the courts.

Payment by City to Agent of Manufacturer Ratified by Act of Manufacturer

Where a fire engine manufacturer notified the city to pay for a fire engine directly to him, but billed the engine to an agent, who made the contract so that the city had to pay him to obtain delivery, and thereafter the manufacturer received part of the proceeds from his agent, and gave him credit for his commission, stating to the city that he had made a settlement with the agent, he ratified the payment to the agent and could not thereafter collect any portion of it from the city. (California District Court of Appeal, Gardner vs. City of Glendale, 188 Pacific Reporter 307.)

City Liable in Damages to Party Injured, for Failure to Remove Dangerous Structure

Where a platform was constructed by citizens upon a principal street of a village, for the purpose of holding a public entertainment, and was so defectively constructed as to fall and injure a pedestrian upon the street, it is held that, as the platform had been constructed for several days and a sufficient length of time for the village authorities to be aware of its location and condition, it became the duty of the village authorities to abate it as a nuisance, and, having failed to do so, the village could be held liable for damages for the injury. (Chaney vs. Village of Riverton, 177 N. W., 845.)

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—that's the big job of its fire fighters, night and day, 365 days in the year! And among the latest equipment to help in their work is this new International Motor Truck, on Firestone Cushion Tires.

This type of Firestones was chosen for its unusual resiliency and road-grip. It gives safety and protection to men and machine in speedy runs. And with this almost pneumatic action goes solid dependability and long life.

The Firestone line is universal. It suits all demands for motor or horse drawn apparatus with greatest efficiency and the saving of

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Reasonable Billboard Ordinances

Valid When in Interest of Public Health, Safety or Morals—Invalid When Based Purely on Esthetic Grounds

By A. L. H. Street

MAINTENANCE of billboards on private property cannot be prohibited by ordinance on the ground of offensiveness to the esthetic sense. But they may be the subject of reasonable regulations designed to promote the public health, safety and morals.

It is believed that this is an accurate statement of the general rule on this subject, as determined by the weight of judicial decision.

The courts seem to have been uniform in their conclusion that enhancement of the beauty of municipal scenery is not recognized by the law as sufficient excuse for enacting billboard regulations. The judicial attitude on this phase of the subject is well illustrated by the decision of the Illinois Supreme Court in the case of Haller Sign Works vs. Physical Culture Training School, 249 Ill. 436, 94 N. E. 920, 34 L. R. A. (N. S.) 998, Ann. Cas. 1913D, 959. The law there under consideration provided:

"It shall be unlawful . . . to erect . . . a structure of any kind. . . within five hundred feet of any public park or boulevard within. . . any city in this state having a population of one hundred thousand or more, for the purpose of placing advertisements of any kind or character thereon, etc."

Noting that the act covered parks and boulevards only, and making other observations, the Court said:

"These suggestions lead unmistakably to the conclusion that the statute in question is an attempt to exercise the police power purely from esthetic considerations, disassociated entirely from any relation to the public health, morals, comfort, or general welfare. However desirable it may be to encourage an appreciation of the beautiful in art and to cultivate the taste of the people of the state, still it has never been the theory of our government that such matters could properly be enforced by statute when not connected with the safety, comfort, health, morals and material welfare of the people."

The highest court of the land has approved the view that esthetic considerations alone will not support an ordinance restricting the maintenance of billboards. As late as March 24, 1919, and in the case of St. Louis Poster Advertising Co. vs. City of St. Louis, 39 Supreme Court Reporter, 274, that tribunal said of the ordinance there under consideration:

"Possibly one or two details, especially the requirement of conformity to the building line, have esthetic considerations in view more obviously than anything else. But as the main burdens imposed stand on other ground, we should not be prepared to deny the validity of relatively trifling requirements that did not look to the satisfaction of rudimentary wants that alone we generally recognize as necessary."

A few years ago it seems to have been quite commonly supposed that unless a billboard ordinance had some reasonable tendency to limit fire risks or to avoid blowing over of such advertising structures to the peril of person or property it could not be sustained against attack upon its validity. But this view cannot be said to reflect the law as recognized now. On this point see the further remarks of the United States Supreme Court in the case last cited, wherein the Court upheld the validity of an ordinance of the city of St. Louis containing provisions of which the following is a summary: It allows no billboard of twenty-five square feet or more to be put up without a permit and none to extend more than fourteen feet above the ground. It requires an open space of four feet to be left between the lower edge and the ground, forbids an approach of nearer than six feet to any building or the side of the lot, or nearer than two feet to any other billboard, or than fifteen feet to the street line, and without qualifications requires conformity to the building line. No billboard is to exceed four hundred square feet in area. The fee for a permit is one dollar for every lineal five feet.

In attacking the ordinance, plaintiff represented that its billboards would withstand wind of greater velocity than had ever blown in St. Louis, and that they were so covered by galvanized iron as to exclude all danger from fire. But the Supreme Court said:

"One thing we like about your Caterpillar tires," writes a big contractor, "is the traction our trucks are able to get with them. Only under the most exceptional conditions do we have to use chains. No matter how heavy the load, our trucks never have any difficulty in climbing out of excavations, and we find that Caterpillar equipment means a substantial saving in gasoline consumption."

The Caterpillar's amazing traction qualities seem to be the feature most frequently commented upon by truck owners, but it has two other equally important advantages.

It cushions the truck, and it gives double the average mileage of any other type of tire.

More resilient than a solid tire, more dependable than a big pneumatic, and giving greater mileage than either, it is not surprising that the Kelly Caterpillar has become almost exclusive equipment on some of the largest fleets of trucks in America.

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"Of course, the several restrictions that have been mentioned are said to be unreasonable and unconstitutional limitations of the city in the interest of the safety, morality, health and decency of the community.' . . . It is true that according to the bill the plaintiff has done away with dangers from fire and wind, but apart from the question whether those dangers do not remain sufficient to justify the general rule, they are or may be the least of the objections adverted to in the case."

And the Court makes this further important declaration:

"If the city desired to discourage billboards by a high tax we know of nothing to hinder."

Grounds of objections to billboards mentioned by the Missouri Supreme Court in St. Louis Gunning Advertising Company Case included the tendency to facilitate the commission of crime and nuisances in the rear of such structures, especially where the boards are permitted to come close to the ground. And, under such circumstances, it is found that there is a natural menace to the public health. And yet the decision in this case clearly shows that billboards cannot be excluded on mere grounds of unsightliness, and that the municipal power over them ends when considerations of public safety, health, morals, and good government have been met.

Another leading decision on the point that an ordinance limiting the right to maintain billboards on private property must have some relation to the public welfare is to be found in the case of People vs. Hastings, 77 N. Y. Misc. 453, 137 N. Y. S. 186, wherein it was decided by a New York court that an ordinance requiring a billboard to be constructed of metal was void as applied to a situation where a board constructed of wood could constitute no fire menace. Nevertheless the same court said that an ordinance requiring a permit for erection of boards more than five feet high was valid.

In the case of Thomas Cusack Co. vs. City of Chicago, 242 U. S. 526, 37 Sup. Ct. Rep. 190, it was decided by the United States Supreme Court that an ordinance of defendant city was valid which forbade erection of billboards more than twelve square feet in area in any block where one-half of the buildings on both sides of the street were used exclusively for residential purposes, unless a majority of the frontage owners consented in writing.

"To the Memory of Our Hero Dead"

In line with the growing tendency to memorialize both the dead and the living by the establishment of such institutions as will make all life more worth while rather than to perpetuate the memories of men or events by marble shafts and tablets of bronze, is the action of Bryn Mawr, Pa.

Opinion in that town, as in many others where the question of a suitable monument to the martyrs of the World War on land and sea and in the air has been debated, varied widely on the definition of suitability. There were those who advocated the conventional "Soldiers' Monument," to be found in every state in the Union which sought, on both sides of Mason and Dixon's line, to do honor to its hero dead. There were also those who believed that such a memorial should be as much of the spirit as of the physical, and that a center, building, or fund dedicated to the good of all mankind would create a far more enduring and a nobler memorial than a merely material monument. It was the latter interpretation of a memorial that was at length adopted by the little college town in Pennsylvania. Steps are now under way toward the erection of a community center, in which will be housed six of the largest and most influential activities in that section: the American Legion, the Main Line Branch of the Southeastern Pennsylvania Chapter of the American Red Cross, the Main Line Federation of Churches, the Bryn Mawr Hospital Social Service Department, the Bryn Mawr Community Center and the Main Line Citizens' Association (Visiting Nurses). Thus from a common center will radiate all health and community activities of the town, in ever-widening circles of beneficence. Truly a worthy memorial to the souls of those who went forth and returned not.

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how extremely easy it is to spoil in the making what otherwise would be a wonderful road. You may have the right specifications, the proper material and the best machinery available, but carelessness or poor judgment in the mixing or combining the material, in the spreading or in the compressing or rolling may lay the foundation for unlimited trouble.

Warren Brothers Company insist on the pavement being not only up to specifications, but that the product shall be mixed right and laid right. When you buy Warrenite-Bitulithic you not only buy the accumulated results of years of study and effort, but you obtain the services of one of our best engineers who sees that the road is right. In every department of the work you and the taxpayers who are spending the money are guaranteed the results you pay for.

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has built up its enviable reputation as a result of this policy. Its makers, having provided the best possible specifications and materials for your particular needs, cannot then permit a mechanical error to jeopardize the good name of their product.

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Municipal and Civic Publications

SIXTH YEARBOOK OF THE CITY MANAGERS' ASSOCIATION.

Harrison G. Otis, Secretary of the City Managers' Association. The City Managers' Association, New York. 1920. 183 pp. Illustrated.

This volume contains an account of the proceedings of the Sixth Annual Meeting, held in Indianapolis, October, 1919, and a directory of city manager municipalities, corrected to July 1, 1920. A considerable part of the book is devoted to reports on the progress of the manager plan in 185 cities that have adopted it. It contains the significant statement that "to date, no report is at hand of any city having reverted to its former plan of government after ha ing adopted the manager idea by vote of its citizens."

REPORT OF THE UNITED STATES HOUSING CORPORATION. Vol. 1.

Published by the United States Department of Labor, Bureau of Industrial Housing and Transportation, Washington, D. C. 1920. X+ 391 pp. Illustrated.

Volume 1 covers the subjects of Organization, Policies, and Transactions undertaken by the Corporation in its war emergency construction for housing war workers. The volume includes detailed appendices describing the activities of the various divisions of the Corporation, such as the Transportation Division, Town Planning Division, Industrial Relations Division, and several others.

STOPS; OR HOW TO PUNCTUATE.

Paul Allardyce. David McKay Company, Philadelphia. 91 pp.

A practical handbook for writers and students, covering the use of all the marks of punctuation. There is a brief but comprehensive section devoted to the correction of printer's proof.

ZONING IN MASSACHUSETTS.

Bulletin No. 6 of the Massachusetts Federation of Planning Boards. July, 1920. 4 pp. Copy of the Massachusetts Zoning Law, with explanation. (Apply to Arthur C. Comey, Secretary, Cambridge, Mass.)

WATER PURIFICATION IN MILWAUKEE.

Report of Experiments on the Purification of the Water Supply of Milwaukee, Wisconsin. By Joseph W. Elims, Consulting Engineer. 156 pp. Photographs, drawings, maps, tables. (Apply to H. P. Bohmann, Superintendent of Water Works and Water Purification, Milwaukee, Wis.)

INDUSTRIAL EDUCATION.

Report of the Committee on Industrial Education to the National Association of Manufacturers, presented at the twenty-fifth annual meeting of the Association, in New York, May, 1920. 64 pp. Many illustrations. "Representatives of the occupations must dominate in state boards of vocational education because only men whose lives are spent in industry know when either the opportunities or the needs of industry are met by vocational education." (Apply to the Secretary of the National Association of Manufacturers, George S. Boudinot, 30 Church Street, New York, N. Y.

CITY ZONING.

By Robert H. Whitten, Advisor, Cleveland City Plan Commission. Reprinted from the Journal of the Western Society of Engineers, Volume XXV, Number 2, January 20, 1920. 8 pp. Explaining the principles of city zoning and its advantages and showing the need of the zoning of apartment and tenement houses in large cities. (Apply to the Secretary of the Western Society of Engineers, Edgar S. Nethercut, 1735 Monadnock Block, Chicago, Ill.)

A CORRECT PUBLIC POLICY TOWARD THE STREET RAILWAY PROBLEM.

A report of the National Municipal League Committee on Public Utilities in which all previous reports are summarized and the unsolved elements of the problems listed. Published as a supplement to the National Municipal Review, April, 1920. 20 pp. (Address the National Municipal League, North American Building, Philadelphia, Pa.)

A COMPREHENSIVE CITY PLAN FOR EAST ST. LOUIS, ILL.

A quarto of 72 pages profusely illustrated with maps, views and drawings. Prepared for the War Civics Committee of East St. Louis by Harland Bartholomew. 1920. The plan is presented under the following divisions: A Major Street Plan for East St. Louis; Public Recreation; Transit; Transportation; Zoning; Sewers and Water Supply; Housing; City's Appearance; Legal and Financial Aspects of the City Plan. The Appendix contains proposed ordinances designed to make possible the carrying out of the plan. (Apply to Harland Bartholomew, 1103-4 Chemical Building, St. Louis, Mo.)

MISSOURI HIGHWAYS.

Three pamphlets: "Laws of Missouri Relating to Roads, Highways and Bridges," revised 1919, compiled by John L. Sullivan, Secretary of State, to whom apply for this and the next; "Motor Vehicle Law of the State of Missouri"; "Report of John M. Malang, State Highway Superintendent, to State Highway Board," for year ending December 31, 1919, to be obtained from the author. (Address both at Jefferson City, Mo.)

THE TRAFFIC ON HIGHWAYS.

Proceedings of the Annual Convention of the National Highway Traffic Association and the Highway Transport Conference of the National Automobile Chamber of Commerce, held on January 29, 1920, in Chicago. 54 pp. (Address the National Automobile Chamber of Commerce, Inc., Marlin-Rockwell Building, Madison Avenue and 46th Street, New York, N. Y.)

TOWN PLANNING IN SOUTH AUSTRALIA.

"Planning and Development of Towns and Cities in South Australia." Report by Charles C. Reade, Government Town Planner, to the Attorney-General and Minister in control of Town Planning, upon existing conditions and defects and the need for town planning legislation relating thereto in conformity with the provisions of the Town Planning and Development Bill, 1919. Published 1919. 8½ by 13¼ inches. 48 pp. Views, maps and drawings. (Apply to the Government Town Planner at Adelaide, South Australia.)

A PARK SYSTEM FOR OTTUMWA, IOWA.

Prepared under the direction of the Ottumwa Park Board by Leonidas Willing Ramsey, Landscape Architect, Da enport, Iowa. 1920. Presenting specific recommendations for the parks for which plans have been made, and treating in a general way the park problems, park needs and such city planning problems as are involved in the consideration of the park system for Ottumwa. 47 pp. Maps, views, drawings. (Apply to Mr. Ramsey.)

THE TORONTO SCHOOLS.

"The Physical Plant of the Toronto Public Schools" and "The Building Department of the Toronto Board of Education," two interim reports on phases of the business administration of the schools of Toronto, prepared by the Toronto Bureau of Municipal Research in its study of the educational needs and resources of the city. June, 1920. 87 pp. Diagrams and tables. (Apply to the Bureau, 189½ Church Street, Toronto, Ont.)

SOURCES OF INFORMATION ON PLAY AND RECREATION.

Revised and Enlarged Edition, 1920. By Howard R. Knight and Marguerita P. Williams. Published by the Department of Recreation of the Russell Sage Foundation, 130 East Twenty-Second Street, New York City. A condensed but comprehensive list of what has been written about recreation. The arrangement is by subjects, with annotations on many of the publications, some of which deal with other phases of recreation than the subject under which they are listed. A list of publishers with addresses is printed at the end of the bibliography to facilitate ordering in case the publications desired are not available in the local public library.

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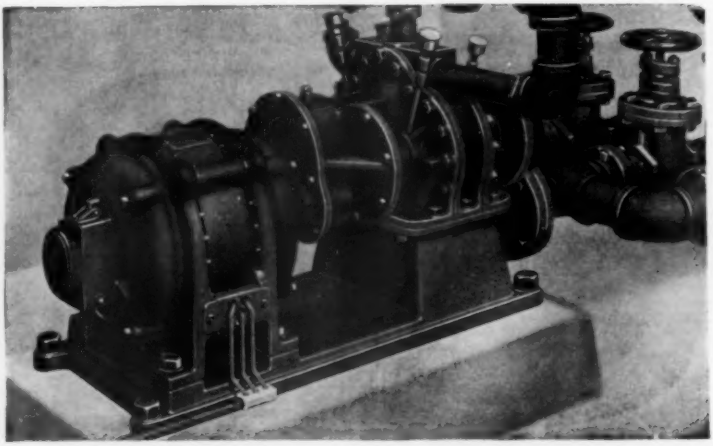

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PROCEEDINGS OF THE UNION OF NOVA SCOTIA MUNICIPALITIES.

A report of the Fourteenth Annual Convention, held at Yarmouth, N. S., August 27-29, 1919. 172 + iv pp. Illustrated. (Apply to the Secretary of the Union, Arthur Roberts, Town Solicitor, Bridgewater, N. S.)

MOTION PICTURES.

"Laws, Ordinances and Regulations on Censorship, Minors and Other Related Subjects" By Lucius H. Cannon, Librarian, Municipal Reference Library, St. Louis, Mo., with list of books by Melitta Dies Peschke. A monthly Bulletin of the St. Louis Public Library. 49 pp. June, 1920.

CHILD HEALTH PROGRAM.

A 16-page illustrated pamphlet prepared by the U. S. Bureau of Education, 1920, for Parent-Teacher Associations and Women's Clubs that wish to guide the health program of their local schools. It covers the following topics: Teaching Health in Our Schools; School Lunches; Nutritional Classes; Correction of Physical Defects; Recreation; Our Teachers' Health; School Sanitation; Good Housekeeping in the Schools; Strategy and Publicity in Community Health Work. (Apply to the U. S. Bureau of Education, Washington, D. C., for Health Education Bulletin No. 5.)

THE PALISADES INTERSTATE PARK.

The Twentieth Annual Report of the Commissioners, published as Legislative Document No. 100, State of New York. 1920. 23 pp. and map. A general description of the park project, and a detailed account of the work accomplished during the year 1919. (Apply to J. DuPratt White, Secretary, 90 Wall Street, New York City.)

HEALTH REPORT OF MASSACHUSETTS.

The Fifth Annual Report of the Commissioner of Health of Massachusetts, reprinted from the Fifth Annual Report of the Massachusetts State Department of Health. 34 pp. An account of the activities of the Department during 1919, with a brief description of the lecture service maintained. In all, 571 lectures were given by the Department to aggregate audience of over 100,000 persons. (Apply to Eugene R. Kelly, M. D., Commissioner of Health, Boston, Mass.)

HEALTH REPORT OF MICHIGAN.

Forty-seventh Annual Report of the Commissioner of the Michigan Department of Health, for the fiscal year ending June 30, 1919. The graphic charts showing the prevalence of various diseases over a period of years add to the value of this report. (Apply to R. M. Olin, M. D., State Health Commissioner, Lansing, Mich.)

CIVIC EDUCATION.

Under the title "Civic Training in Service," Teachers' Leaflet No. 8. June, 1920. Bureau of Education, Department of the Interior. (Apply to the Bureau.)

THE SCHOOL AND THE MEMORIAL COMMUNITY HOUSE.

Bulletin No. 11, of the series on Community Buildings as War Memorials. A concise but detailed account of the possibilities of the uses of combined schools and community houses. The discussion of the rural community's schoolhouse will be helpful to those interested in rural school consolidation. Published by the Bureau of Memorial Buildings of the War Camp Community Service, 1 Madison Ave., New York, N. Y. 1920. 27 pp. Illustrated.

TORONTO'S CHILDREN.

"Toronto's Children Are Her Greatest Asset." Triple folder issued by the Bureau of Municipal Research, 189½ Church Street, Toronto, Ontario, May 5, 1920. A summary of findings and suggestions from the Bureau's survey of the educational needs and resources of the city. (Apply to the Bureau, as above.)

NATIONAL ASSOCIATION FOR THE ADVANCEMENT OF COLORED PEOPLE.

Tenth Annual Report of the Association for the year 1919. "A Summary of Work and an Accounting." 103 pp. (Apply to the Association, at 70 Fifth Avenue, New York City.)

RURAL HEALTH.

Proceedings of the Second National Country Life Conference, Chicago, 1919. Published by the American Country Life Association. 242 pp. Illustrated. (Apply to Charles J. Galpin, Executive Secretary, Washington, D. C.)

THE FUTURE OF TOWN PLANNING.

A paper by Viscount Astor read at the Meeting of the Town-Planning Institute, June 25, 1920, with the discussion at that meeting. Published by the Town-Planning Institute. 23 pp. (Apply to the Institute, 4 Arundel Street, London, W. C., England.)

THE HOUSING CRISIS.

A memorandum prepared for the Special Session of the New York Legislature, by the City of New York. 13 pp. September, 1920. (Apply to the City Club, 55 West 44th Street, New York City.)

MUNICIPAL PROBLEMS IN BALTIMORE.

Report of the Committee on Municipal Problems appointed by the Merchants and Manufacturers Association of Baltimore. 1920. 63 pp. The report discusses at length such questions as municipal taxation, harbor development, fire prevention and waste, public health and education. (Apply to William H. Maltbie, Chairman.)

TYPHOID REDUCTION IN SOUTH CAROLINA.

Comparative results in counties with and without health organizations. L. A. Riser, M.D., Director, County Health Work, South Carolina State Board of Health. 7 pp. Graphic evidence of the value of county health organizations. (Apply to L. A. Riser, Columbia, S. C.)

TIMBER DEPLETION.

Timber Depletion and the Answer. A Summary of the Report on Timber Depletion and Related Subjects. Prepared in Response to Senate Resolution 311. United States Department of Agriculture Department Circular 112. William B. Greeley, Forester. 15 pp. Discussion of existing condition and proposals for a national forestry policy. (Apply to William B. Greely, Forester, Forest Service, U. S. Department of Agriculture, Washington, D. C.)

TORONTO CITY BUDGET.

City Budget Facts, based upon the official estimates of the city of Toronto, 1920, together with a discussion of the public service enterprises of Toronto. Part 1. The Budget Proper. 16 pp. Charts and diagrams. (Apply to John MacDonald, President, Bureau of Municipal Research, 189½ Church Street, Toronto, Ont.)

Municipal Reports

Andover, Mass.—Twentieth Annual Report of the Board of Public Works of the Town of Andover, embracing the Thirty-First Annual Report of the Water Commissioners and the Twenty-Third Annual Report of the Sewer Commissioners for the year ending December 31, 1919. (Apply to F. L. Cole, Superintendent, Board of Public Works.)

Milton, Mass.—Eighteenth Annual Report of the Water Commissioners of Milton, Mass., for the year 1919. (Apply to Marcy L. Sperry, Chairman.).

Newark, N. J.—Annual Report of the Department of Health, Newark, N. J., for the year ending Dec. 31, 1919. (Apply to Charles V. Craster, M. D., Health Officer.)

New York, N. Y.—Fourteenth Annual Report of the Board of Water Supply of the City of New York, accompanied by the Report of the Chief Engineer, Jan. 1, 1920. (Apply to John F. Galvin, President of the Board.)

St. Louis, Mo.—Annual Report of the Division of Parks and Recreation of the Department of Public Welfare of St. Louis. For the fiscal year ending April, 1920. Illustrated. (Apply to Fred W. Pape, Commissioner of Parks and Recreation.)

St. Paul, Minn.—Thirty-eighth Annual Report of the Board of Water Commissioners for 1919. (Apply to J. I. Parley, City Clerk.)

Syracuse, N. Y.—Second Annual Report of the Department of Parks. 1919. (Apply to F. M. Westcott, Commissioner.)

Tacoma, Wash.—Annual Report of City Controller. 1919. (Apply to J. M. Roberts, City Controller.)

Washington, D. C.—Report of the Woman's Bureau of the Metropolitan Police, District of Columbia. For 1919. (Apply to Mina C. Van Winkle, Director.)

Estimates of Cost of Proposed Work
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Dams and Reservoirs
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News for Boards of Public Works, Engineers, Contractors, Purchasing Agents, and Others Interested in the Economical Construction and Efficient Operation of Public Improvement Undertakings

Importance of Metering Water at the Pumps

Recent extensive and systematic investigation by THE AMERICAN CITY has shown that in spite of the important advances made by municipalities in water works operation, many water works officials apparently do not appreciate the importance of metering water at the pumps.

In the case of pumps of the reciprocating type this is probably due to one or two rather prevalent fallacies. Many engineers believe that pump "slip" is always accompanied by noise, and if there is no noise present they conclude that the pump is operating at rated efficiency. Experience has shown, however, that often this is not the case. If the "slip" is due to a small number of badly worn valves a noise can easily be detected, but if the "slip" is due to a large number of slightly worn valves, the noise will be inaudible.

Sometimes engineers also attempt to test for "slip" by opening the hand holes underneath the valve decks and by allowing the full water pressure to be exerted upon the top of the valves. When they find only a small amount of leakage they draw the erroneous conclusion that the "slip" at this point is negligible. This does not follow, because much of the "slip" occurs while the valves are in the act of descending, and in modern pumping engines the valves are in the act of descending a large proportion of each revolution. Because of the sudden and frequent reversals of water pressures in up-to-date pumping units, rubber valves are rather quickly worn on the under side. The valve touches its seat around the outer circumference, around the central hole and also upon the radial ribs. Depressions, frequently ⅛-inch deep, are worn in the rubber, and when the valve happens to turn around to a new position the raised spots come in contact with the ribs. Perfect seating is therefore an impossibility, and excessive leakage, or "slip," occurs during the closing and during the reversal stroke of the pump plunger.

In connection with the performance of centrifugal pumps, engineers are also often too prone to rely solely on the maintenance of the theoretical discharge. Here again experience has shown that this cannot be depended upon. The actual performance of the pump may be much poorer initially than its designers anticipated. Then too, after brief periods of service the vanes or impellers become "cut" by gritty or acid-bearing water, or even clogged, bent or broken by sticks, twigs, fish or debris carried by the swiftly moving column of water.

A RECORDING METER FOR PUMPING STATIONS

To be absolutely sure of the efficiency of a pumping unit, whether reciprocal or centrifugal, a reliable checking device must be used constantly, and for this service the venturi meter is standard equipment. Many pump manufacturers employ them to determine the actual performance of pumps before shipment, and in new plants it is almost universally specified as a part of the station equipment.

The Builders Iron Foundry, Providence, R. I., makes venturi meters for use with a pumping unit. A manometer, which reads directly in gallons per minute or other desired units, is used. Usually, however, a register-indicator-recorder is selected for this purpose. In addition to indicating the momentary rate of flow it registers the total flow and records continuously on a circular chart the rate of flow over a period of 24 hours. Sometimes the indicator dial has a second set of graduations corresponding to the pump speed, so that the percentage of pump slip can be quickly determined by comparing the actual number of revolutions per minute of the pump with the indication on the dial. For instance, the pump may be running at exactly 25 revolutions per minute and the indication on this dial may be 23; the "slip" would therefore be 8 per cent.

New Rochester Consulting Engineer

Announcement has just been received that James W. Routh, Director and Chief Engineer of the Rochester Bureau of Municipal Research, has opened offices at 501 Arlington Building, Rochester, N. Y., where he will be available as a consulting municipal engineer

A Modern Lighting System

does *not* require separate Lamp Standards as this street scene clearly shows.

Missoula, Montana, is one progressive western city utilizing "ELRECO" Combination Railway and Lighting Poles, which makes separate Lamp Standards unnecessary.

The "ELRECO" Steel Poles support ornamental lighting brackets with modern General Electric Lighting units; also, the span and service wires of the Railway and Lighting Company; keep the streets free and unobstructed from extra Lamp Standards, wooden poles, and a multiplicity of wires, etc.

The usual practice of financing such an installation is to divide the cost between the local Street Railway and Lighting Company, Merchants and the City, making the cost of "WHITE WAY" very reasonable.

What other progressive cities have accomplished is well illustrated in our handsome Catalog "F", sent on request to those interested.

Electric Railway Equipment Company

CINCINNATI, OHIO.

New York Office — 30 Church Street

prepared to conduct investigations, to make plans, specifications and reports and supervise operations in connection with all municipal engineering activities.

Two Styles of Street Lighting Standards

The recent installation of a White Way street lighting system in St. James, Minn., includes many interesting features. The lights are staggered throughout the system and in the business section they are placed 90 feet center to center, while in the residential section they are about 106 feet center to center. The corner lights, of which there are four for each downtown corner and two for corners in residential districts, are placed 15 feet back from the property line so as to conform with the spacing through the blocks.

LIGHTING STANDARD, ST. JAMES, MINN.

The lights are operated on two separate circuits, one of which is turned off at midnight, and the other left on all night. All the lights are connected with the former or midnight circuit except two diagonal lights on each street intersection which burn all night. Two styles of light standards are used. The large standards, 12 feet high, are one-light posts, made by King Manufacturing Co., 53 W. Jackson Boulevard, Chicago, Ill., equipped with General Electric Novalux units having white glass diffusing tops and glass canopy tops, and the smaller standards, 10 feet high, are a different style of King post, equipped with another type of Novalux top. About 122 of the large standards are installed downtown, and in the outlying part of the city 10 of the small ones were used. The posts are all set in concrete footings 24 inches square by 3 feet deep, and are fastened by means of four bolts, imbedded in the concrete. In the base of each post is placed a Cutter disconnecting pothead for making the connection between the ground cables and the interior wiring of the post. Each of the standards is equipped with a 6.6 ampere series Mazda C lamp of 400 or 250 candle power each.

This installation was described in detail in the April, 1920, issue of THE AMERICAN CITY, pages 379-380.

AN EASY WAY OF CARRYING A RUBBISH BARREL DOWN A FLIGHT OF STEPS

A Handy Barrel Carrier

The very convenient barrel carrier illustrated herewith has been invented by a member of the Department of Public Works, Rochester, N. Y. This carrier is designed to do away with many ash collection difficulties and is of distinct advantage in hilly cities where ashes have to be carried up or down flights of steps. Its advantages are ease of loading and propulsion, less noise and less spilling of ashes. The large wheels move easily in mud, snow and over bumps or curves. It speeds up the collection without fatigue and in this way saves at least 25 per cent in labor cost. Barrel carriers of this type are appreciated by householders, officials and collectors.

The machine, as manufactured by John T. Lynch, 907 Dewey Avenue, Rochester, N. Y., has either one or two small wheels in the rear. The particular benefit of the two small wheels is that it secures a better balance for moving heavily loaded barrels up a flight of steps. In cases where this is necessary the two small wheels make a double fulcrum, while the machine with one small wheel is more compact and is excellent where only empty barrels or lighter loads have to be taken up steps. The Y-rod at the top is very convenient for holding additional tubs or bundles of waste material without an appreciably greater exertion. This Y-rod has a double hook at the end, which drops over the edge of the barrel being carried and prevents its falling off the machine during transportation. The large, broad tread wheels make it easy to use the carrier on steps, soft ground and snow where traction is poor.

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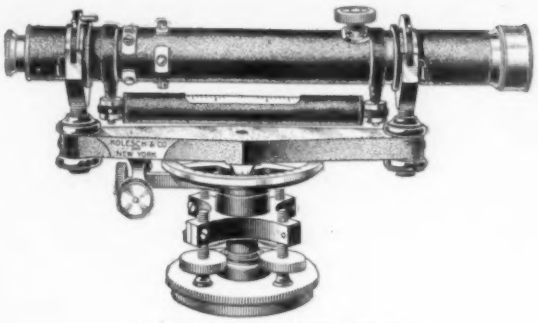
A Handy Level for Municipal Work

The accompanying illustration shows a level designed especially for the use of builders, architects and contractors for leveling and plumbing walls, giving levels for buildings, laying out angles, grading streets, sewers, drains, etc. The instrument as manufactured by Kolesch & Company, 138 Fulton Street, New York City, consists of a telescope about 12 inches long with a magnifying power of 19 diameters. The lenses are of domestic make with a 1⅛-inch objective. The level carries a dust cap and sun shade and a rack and pinion movement to the objective. The eye piece is adjustable for focusing the cross hairs, and the fine bubble which is attached to the telescope and graduated on the glass, has a sensitiveness of 60 seconds. There is an improved device for locking the clips in the Y's to prevent any trouble from slipping of the telescope. The horizontal circle of three inches is divided into degrees, reading by a vernier to 5 minutes. This circle is held in place by a friction clutch and can be set at zero at any given point. The level is also provided with four leveling arms and is well finished.



A LEVEL FOR ALL-ROUND USE

A Spanish Water-Works Booklet

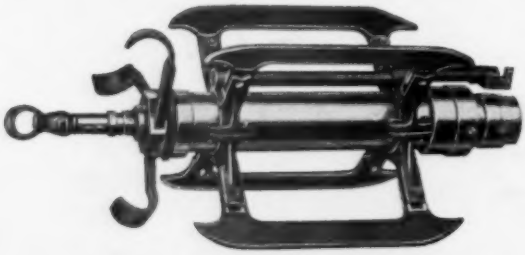
In order to properly take care of the growing business in chlorinators in Central and South America, Wallace and Tiernan Company, Inc., 349 Broadway, New York City, have issued a new booklet describing their apparatus in Spanish, bearing the title "Depuración de las Aguas Potables con Cloro Liquido."

New Activities of Professor Blanchard

Arthur H. Blanchard, formerly of New York City, and now Professor of Highway Engineering and Highway Transport at the University of Michigan, Ann Arbor, Mich., has recently been appointed Consulting Engineer to the Michigan State Highway Department.

Photograph by Everwear Manufacturing Co., Springfield, Ohio

A NEW TYPE OF SEESAW WITH REINFORCED BEAM FOR PLAYGROUND USE



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A PORTABLE VOTING BOOTH FOR MUNICIPALITIES

Buildings for Voting Purposes

Owing to the shortage of housing facilities and other sundry causes, it has been found difficult in many localities to provide suitable buildings for election purposes.

The solution to this ofttimes perplexing problem has been found in a standardized, portable steel building recently placed on the market by a large steel building manufacturer. The advantageous feature of this building is its portability—its standardized design permits quick dismantling with ordinary labor and transportation to another locality in either a wagon or a truck. This feature is especially desirable because of ever-changing voting places in different precincts.

This building is made of steel throughout; the structural framework, the galvanized sidings, steel window frames and sashes, and kalsomined doors give rigid and durable construction, which means almost the entire elimination of maintenance expense. When not in use, these buildings could serve as storage facilities for country road building equipment.

The Blaw-Knox Company of Pittsburgh, is placing this building on the market.

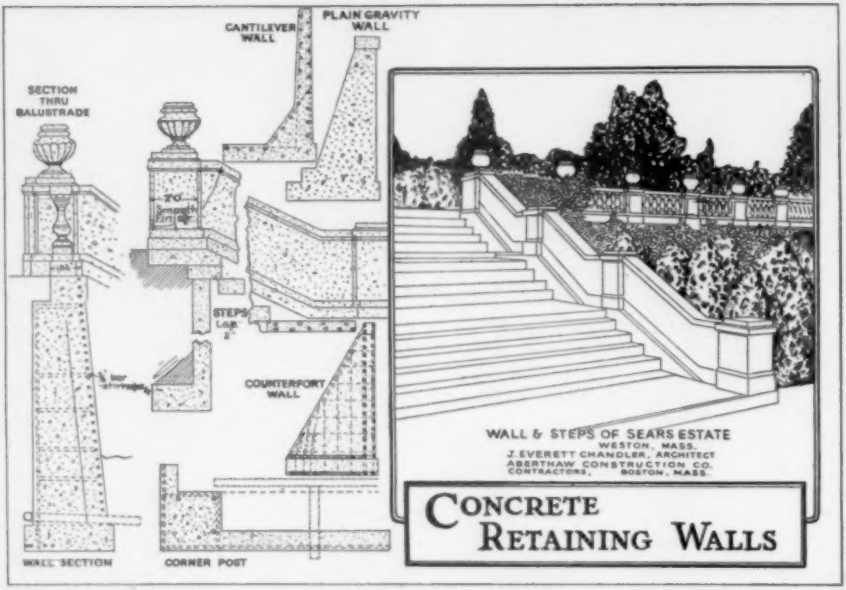
The Municipal Uses of Explosives

In the course of municipal construction work explosives are often called upon to play an important and ever-increasing part. Drainage operations are greatly facilitated through the use of propagated blasts of properly selected explosives; sewer and water main trenches in rock are necessarily dug by the use of dynamite; buildings which have entirely outlived their usefulness and have no junk value are quickly demolished through the use of dynamite. In time of conflagration where nothing short of lack of material to burn will stop the fire fiend on its way, explosives are used to raze buildings in order that the debris may be readily wet down with fire streams and the conflagration checked. These are but a few of the many uses to which Red Cross dynamite and the other brands of explosives manufactured by the E. I. Dupont de Nemours & Company, Inc., Explosive Division, Wilmington, Del., are put.

This company maintains dynamite mills, black powder mills and distributing magazines throughout the length and breadth of the United States so that at all times explosives are available to municipalities and others for immediate service. The accompanying illustration shows workmen preparing charges of dynamite for shattering a huge ledge which lay in the way of a highway development.

PREPARING BLAST HOLES FOR THE REMOVAL OF A LEDGE ALONG THE LINE OF A PROPOSED HIGHWAY

Get these Practical ALPHA service sheets on Concrete Construction



The above illustrations give an idea of the practical suggestions offered by the ALPHA Blueprint Service Sheets and Special Bulletins, which cover the following concrete improvements:

Workingmen's Homes	Spring House	Inclosure Walls	Piers for Small Boats
Walkways and Driveways	Small Dam	Barn and Silo	Garden Furniture
Concrete Roads	Milk House	Corn Crib	Greenhouse
Bridges and Culverts	Ice House	Storage House	Coal Pocket
Foundation and Hatchway	Manure Pit	Smoke House	Post and Walls
Gutter and Curb	Septic Tank	Hog House	Walls, Sills and Lintels
Storage Cellar	Oil Storage Tank	Poultry House	Garages and Runways
Small Warehouses	Tennis Court	Drip ing Vat	Overcoating of Old Dwelling
		Tanks and Troughs	Porch, Cellar and Stable Floors

Ask for the sheet or Bulletin that interests you most. A copy of our Handbook, ALPHA CEMENT—HOW TO USE IT—96 pages, illustrated—will also be sent free on request if you live East of the Mississippi. We are obliged to ask inquirers out of our sales field to send fifty cents to cover the printing and mailing expense of this literature. Mention American City.

ALPHPA PORTLAND CEMENT COMPANY, General Offices, EASTON, PA.

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Concrete for Permanence

BOX-BARBERRY BORDERED FORMAL GARDEN

Box-Barberry for Low Hedges

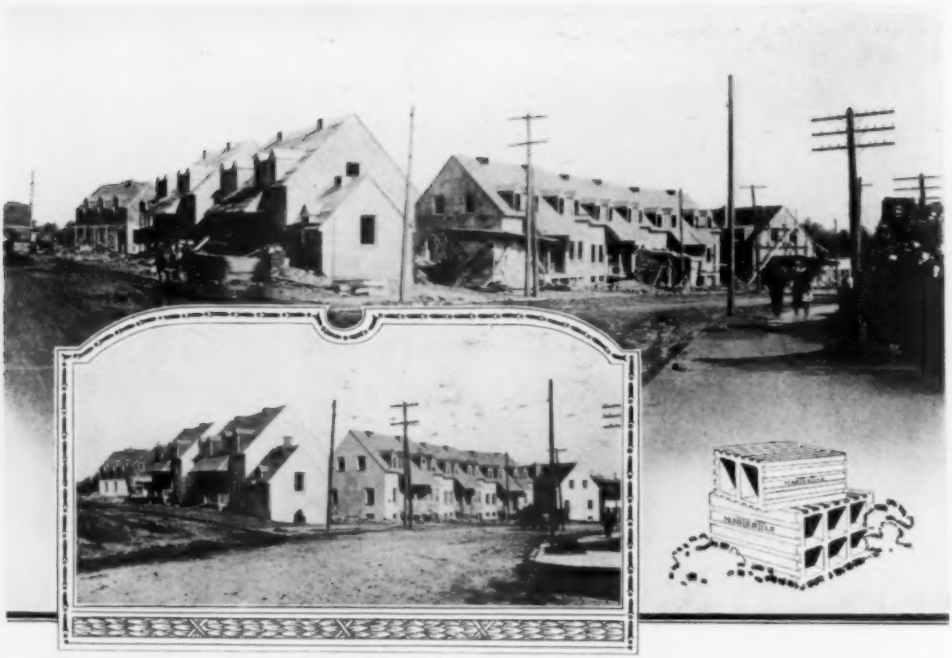
It is by making use of the occasional horticultural happening, or by deliberate breeding, that our wealth of trees and plants, useful either for their fruit or their beauty, is increased. Japan has added materially to the hardy trees and plants in general use throughout our country. Perhaps one of the most universally useful shrubs from that country is the Japanese barberry (Berberis Thumbergi). It is not only graceful and beautiful, but free from insect troubles, extremely hardy, and disposed to thrive under a great variety of soils and climatic conditions. When in doubt as to what to plant, one can safely plant Japanese barberry.

At the nurseries of the Elm City Nursery Company, New Haven Conn., some twenty years ago, among a batch of many thousand seedlings, one was noticed which was very compact and upright in its habit of growth, with small and narrow leaves. This seed variation being in such marked contrast to the general run of Japanese barberry seedlings, the little plant was removed to a place where its habit could be more carefully studied. Within five years the plant had developed into a ball-like little shrub some 3 feet high, and since then has kept on growing, though very slowly, till now the original plant is about 4½ feet tall, still maintaining its ball-like habit. So interesting a variation from the normal type did this new seedling (Box-Barberry) prove to be, that the nursery on whose grounds it first appeared propagated a few hundred for experimental purposes. It was not until this batch of cuttings were put out in a nursery row where they formed a continuous line, that its value as a low border and low hedge was thought of. As the little plants grew in a continuous line, it was apparent to all who saw them that this barberry with its distinct upright habit had unquestionable merit.

It was not, however, until within the last five years that enough stock of it was propagated to warrant sending out plants to the various experiment stations and public parks so that it could be given a general trying out as to its hardiness and adaptability to various conditions of soil and climate. In the meantime the nursery holding the original stock decided to introduce it to the general public, and under the name of Box-Barberry most of the readers of THE AMERICAN CITY, through recent publicity, are undoubtedly familiar with it by name, if not by actual experience with the plant itself.

Recent Contracts for Warrenite Bitulithic Pavement

Warren Brothers, Boston, Mass., have recently announced a number of awards for Warrenite and bitulithic pavement throughout the west. A contract was awarded to the Moran Paving Company for 77,840 square yards partly on a dense bituminous base and partly resurfacing old macadam in Ogden, Utah. In Dallas, Texas, the Texas Bitulithic Company received a contract for 59,765 square yards of pavement on a concrete base. Clark & Henery have a contract for 7,778 square yards of pavement in Gridley, Cal., on 4-inch Portland cement base. In Kingsbury Cal., a contract was received by the California Road and Street Improvement Company for 50,167 square yards pavement on 4-inch asphaltic concrete. Similar contracts for amounts varying from 334 square yards to 119,000 square yards have been awarded also in the West.



Rapid Economical Construction

IN planning the many homes required to solve the housing problem of Sun Village, Chester, Pennsylvania, rapidity of construction and economical methods were necessarily governing factors—not sacrificing, of course, good building principles.

For the structural material, Hollow Building Tile, made in large units of enduring burned clay with two or more air cells, offered every quality that was desired. It could be handled easily and rapidly because of the large shapes, and laid at a low material and labor cost. The permanent character of the non-combustible material meant the minimizing of repair and upkeep expenses. The air cells afforded comfortable, healthful homes by insulating against dampness, and against the cold of winter and the heat of summer.

HOLLOW TILE

The Most Economical Form of Permanent Construction

Hollow Tile was deemed the most satisfactory material from every standpoint, and was used exclusively as a structural material. Whether erecting one or a group of structures, Hollow Tile will prove the most logical material to use.

City officials interested in building ordinance work can secure copies for reference purposes of a Standard Code on Hollow Tile construction by writing to the Association, Department 2410.

THE HOLLOW BUILDING TILE ASSOCIATION

REPRESENTING AMERICA'S LEADING MANUFACTURERS

CONWAY BUILDING, CHICAGO

THERE IS NOTHING SLOPPY ABOUT THIS WATER-TIGHT GARBAGE COLLECTION WAGON

The Odorless Removal of Garbage

The accompanying illustration shows a very efficient garbage wagon built by Geo. H. Holzbog & Bro., Jeffersonville, Ind., and used by cities and towns throughout this and foreign countries. The body is made of steel with closely fitting lids which prevent the escaping of obnoxious odors and the leaking of contents. For the hauling of liquid or semi-liquid materials, such as slops, sewage, night soil, etc., the wagon is ideal. The body, hanging low, makes the loading easy, and it is also easy to dump. At the close of day it is a very simple matter to thoroughly clean the wagon by flushing with the hose. It can be used as a trailer if desired, by changing the pole.

This is a very strong, durable wagon, neat and attractive in appearance, and will prove a valuable addition to the garbage equipment of any up-to-date community. It may be had in 37-, 54- or 65-cubic foot capacity size. The same firm also builds two-wheel carts of a similar pattern.

New Personnel With Morris Knowles, Ltd.

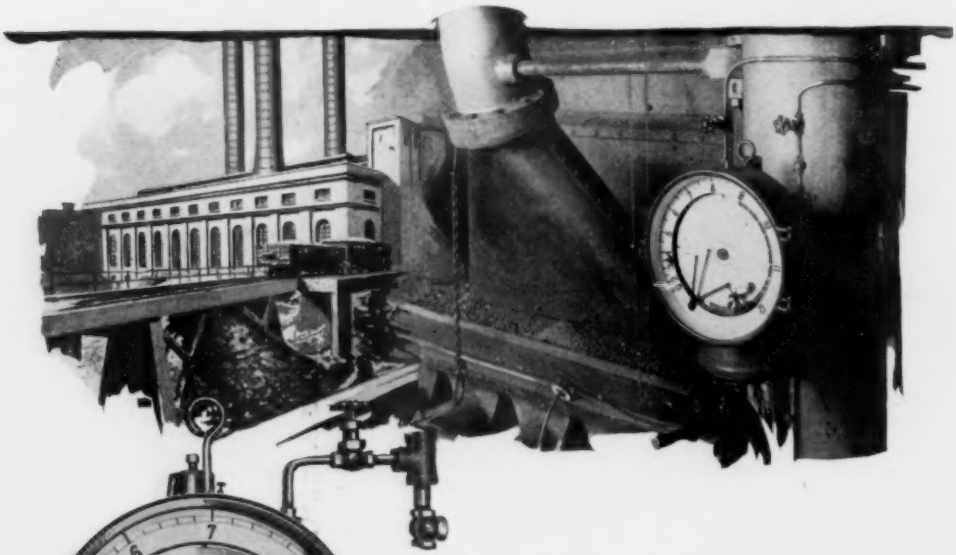
J. Clark Keith formerly engineer in charge of design and construction for the municipality of Moose Jaw, Sask., now of Morris Knowles, Ltd., of Windsor, Ont., has been appointed assistant chief engineer of the Essex Border Utilities Commission, having jurisdiction over the water supply, sewerage and park systems of the seven municipalities bordering on the Detroit River. Charles E. Henderson, manager of the Windsor, Ont., branch of Morris Knowles, Ltd., has been appointed division engineer in charge of the Detroit office of Morris Knowles, Inc. Mr. Henderson was at one time assistant city engineer of Port Arthur, Ont., later going to St. Augustine, Fla., as city engineer.

There's Cold Weather Ahead for Your Policemen

Policemen are human being in spite of their attitude toward those who have unintentionally done wrong, and cities may well think to look ahead and care for the comfort of the police force, during the winter. There are many stationary posts where policemen, particularly those directing traffic, are called upon to stand in the wet and slush during the winter at street corners. Some cities provide slightly elevated wooden platforms which at least keep the traffic policemen out of standing water, but in cold weather when slush falls repeatedly, the policeman who is not called upon to move about very much suffers greatly from the cold penetrating his damp shoes and numbing his feet. The Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., has devised an electric foot-warming device which can be placed at the crosswalk where a policeman is called upon to stand, and is elevated sufficiently to keep it out of ordinary depths of standing water. The current for this device may readily be brought from an overhead wire, and the foot-warmer is kept at a moderate temperature, sufficient to keep the policeman's feet warm and make him a most congenial officer.

WARM FEET ARE CONDUCIVE TO HAPPINESS

121,322,820 less tons of soft coal were mined last year than in 1918—consumers' stocks are low and the demand keen.



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